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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL: FIRST RELEASE Wed. Feb. 2.

SHORT COURSE: Incubation.

LECTURE No 2: Selection of Eggs.

ANNOUNCEMENT: It is high time our radio schoolmaster should be discussing the Selection of Eggs for Hatching. In case you should miss any of this series of lessons on incubation we urge you to avail yourselves of the printed lessons in booklet form. There are 24 in number, covering the entire 216 U. S. Radio Farm School talks on poultry as well as dairying and livestock, sponsored by the Department of Agriculture at Washington. They are free to all who request enrollment in the Radio Farm School.

(The characters speaking during this lecture are: The Professor himself; and Doyle and Newton, members of the class.)

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THE PROFESSOR: Hey! --- You men with that crate of eggs! Bring it over here ----

Put it up on this desk --- That's right --- that'll do -----(Rapping on desk) The class will be in order!

We are going to select eggs for hatching today.--- Doyle! --

DOYLE: Yes, sir!

THE PROFESSOR: Come up here to the desk --- I want you to show the class what kind of eggs to select.---

As I've said before, you can't hatch good chicks from poor eggs.

Now, Doyle, I have a crate of eggs here -- the fit and the unfit. I want you to select a setting from this crate. Put those you consider good for hatching on the table here at the right. Put those you discard over on the left -- Go ahead?

DOYLE: Is this the way, Professor? ----

THE PROFESSOR: Ah, I see. You put the first one on the left -- you discard it? -- What's the matter with it?

DOYLE: It's too small.

THE PROFESSOR: Yes. Small eggs bring low prices on the market -- if hatched, they tend to make small chicks. Size is certainly very important -- but -- wait a minute -- How about this extra big egg Doyle just put on the right? Newton?

NEWTON: It's too big. Very big eggs are not best for hatching. Double-yolk eggs usually don't hatch at all.

THE PROFESSOR: That's right. The average weight of an egg should be about 2 ounces, -- varying from 1 7/8 to 2 1/8 ounces. Discard the very big eggs as well as the small ones.

You will all notice these he's discarded -- They are poorly shaped and long-pointed. You know, long-pointed eggs are apt to be broken in shipment in ordinary egg crates -----

But what about this egg, Doyle? It has good size and shape?

DOYLE: Yes, but it's off color. I'm choosing only chalk-white eggs. The market around this section demands white eggs.

THE PROFESSOR: You're eggs-actly right. Uniformity in appearance is a big factor in market eggs. Eggs for hatching should also have good shell texture and should be clean ---- I see you've discarded all cracked eggs, including those in which the shell is only slightly cracked ---- That's right, too.

As you all know, you can detect blind checks or slight cracks by the difference in the sound when they are clicked against each other. Eggs with thin or porous shells usually do not hatch well. Very dirty eggs should also be discarded --- but, how about this one, Doyle? It's only slightly soiled. In a case like that, I'd clean it by rubbing it lightly with a damp cloth -- but I'd be careful not to rub off any more of the natural bloom of the egg than is absolutely necessary.

But taken as a whole, Doyle, you've done a pretty good job in selecting good, clean, sound eggs of the proper size, shape, and color. Now if those eggs are fertile, you should get a fine hatch.

NEWTON: How can you tell whether the eggs are fertile or not?

THE PROFESSOR: Well, fertility in eggs can be accurately determined only after the eggs are incubated. But we've pointed out before some of the ways you can make fertility more certain. Fertile eggs are obtained only from mature breeding stock which is properly housed -- and which is mated and managed so that health and vigor are kept at the highest point. You should not use pullets for breeding if you can help it. Matings should be made from 2 to 3 weeks before the eggs are to be saved for hatching. About 10 days should be allowed if a mating is changed before eggs of the new mating are saved. Fertile eggs with good vitality are prime essentials in good hatches.--- You may be seated, Doyle -----

And another thing --- you should set only fresh eggs. Eggs for hatching begin to deteriorate when they are about five days old. None of the eggs should be held over 7 to 10 days if possible. Eggs over 3 weeks old usually will not hatch.

In freezing weather, you should collect eggs for hatching two or three times a day -- in order to prevent them getting chilled. And all the eggs for hatching should be kept in a cool, moderately dry place that is free from drafts -- (As if interrupted) Well, Newton?

NEWTON: What's the proper temperature?

THE PROFESSOR: An even temperature of from 50 to 60 degrees is best. Basements or rooms in incubator cellars are usually the best places to hold hatching eggs.

NEWTON: How often should you turn them?

THE PROFESSOR: Unless you hold them more than five days, it's not necessary to turn them at all. But after they have been held as much as five days, you should turn them every day. There are various commercial turning devices which are used. But I keep my eggs for hatching in the drawers of a cabinet and just move them about by hand.

You appreciate why turning is necessary, do you not? You know evaporation takes place in an egg. With the shrinkage in the moisture content, an air cell is formed at the large end of the egg. As the egg gets older, the air cell increases in size -- Now the yolk of the egg is held in place by two coiled cords of dense albumen. As an egg becomes older, the albumen becomes thinner and weaker and the yolk tends to settle toward the lower side of the egg.

But what I want to emphasize now is careful selection. If you want to produce good chicks, you first want to have good breeding stock; second, that breeding stock must be well managed; and third, you want to use care in selecting the eggs for hatching.

Selection of eggs for hatching offers one of the cheapest and quickest ways to improve the breeding stock.--- (As if interrupted) What is it, Doyle?

DOYLE: How about shipping eggs for hatching?

THE PROFESSOR: Well, that can be done successfully -- if the eggs are well packed and carefully handled. You can just use a market basket. Line it well with excelsior. Pack each egg individually in excelsior. Cover the top of the basket with cloth. Corrugated paper boxes which hold from 15 to 25 eggs are also used. But if you wish to ship in larger quantities, it would be a good idea to use duck-egg fillers in ordinary egg crates. The duck-egg fillers are large enough so that each egg may be wrapped individually.

----- Next week we are going to follow nature's method of hatching with hens. I'll call on some of you fellows who use hens for hatching to answer a few questions. So come prepared.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL SECOND RELEASE Wed. Feb. 2

SHORT COURSE: Common Poultry Diseases and Worms.

LECTURE No. 2: Roup.

ANNOUNCEMENT: The second poultry lesson discussed is "roup", a disease that causes much loss to a great many poultry. Further information on the subject can be obtained by a request for all government bulletins on this subject and also by enrolling in the U. S. Farm School, which automatically brings you the 216 printed radio talks.

(The characters speaking during this lecture are: The Doctor himself, and Martin and Davidson, members of the class.)

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THE DOCTOR: Move up there, boys, and let that man in with the chairs ---- We certainly have a crowd here today! ----

MARTIN: Everybody's here that's not attending to his sick chickens, Doctor.

THE DOCTOR: It certainly looks like it, Martin. I didn't realize that the subject of roup was so popular.

MARTIN: That's the trouble. Out our way, it's getting more popular every day.

THE DOCTOR: All right men! (Raps twice sharply on desk) You all know why we are here. Don't stand back on ceremony. If there are any questions you want to ask, pitch right in and ask them. We want to get right down as near your own chicken coop as possible ----

Martin, suppose we start with you. You just said there was roup in your neighborhood --- Is it in your flock?

MARTIN: No, sir!

THE DOCTOR: Is there anything in particular you would like to ask about it?

MARTIN: Yes, sir. I want to know how to keep it from getting among my chickens.

THE DOCTOR: Roup you understand is a contagious catarrh. We don't know the nature of the microbe. In fact, we've found several germs in roup.

But they are not the advance guard. Most probably they are incidental or secondary invaders rather than the actual cause of the trouble.

Anyway, the contagion is generally brought into the poultry yard by infected birds. That means, Martin, if you want to keep it out you should keep out the birds that carry the infection.

MARTIN: I do that, Doctor. Every new chicken I buy, I quarantine for 10 days before I turn them in with the other chickens. When I bring any back from the poultry show, I treat them the same way.

DOCTOR: That's proper. When you keep them separate from the others for that length of time, it gives the infection time to show up. Then in case they are infected, you can get rid of them before there's any chance for the disease to spread.

As most of you know, roup is apparently brought on by exposing the chickens to draughts, dampness, or chilling.

That means, that your poultry houses must be built right or be altered until they are right.

If you have a long house, you need solid partitions.-- say every 20 feet. Otherwise the house will be drafty --- and the chickens will be apt to catch cold. The house should also be dry. It is not enough just to have a roof that will keep off the rain. The chickens inside the house give off moisture. That moisture should be carried off by ventilation. Fresh air is also essential. Hens will do well in a cold house, provided it is well ventilated.

Then another aid in roup prevention is sunshine. The more sunlight in the house the better.

Than also your flock should be well nourished. (As if interrupted) -- All right, Davidson?

DAVIDSON: How does it start, Doctor?

DOCTOR: About like an ordinary cold. There are discharges from the eyes and nostrils. There is usually fever and dullness. The feathers look soiled and umkempt. The chicken is dull and has a fever ----

DAVIDSON: Does its eyes stay shut?

THE DOCTOR: Yes. The inflamation soon spreads from the nasal passages to the eyes. They often become sealed. The closed lids may bulge way out. When both eyes are closed, the chicken can't find its food. The difficulty in breathing makes it hang its beak open to get air. It gets weak and thin

and death soon follows -----

DAVIDSON: Doctor, I believe one of my hens must have the roup --- I noticed it today --- What can I do about it?

THE DOCTOR: Quarantine the sick chicken at once. If both eyes are sealed up, kill it. Burn or bury the carcass and disinfect the premises.

If the bird is not far enough gone to need killing, you should sponge the nostrils celan with warm water. If there is a swelling under the eyes, you should carefully open it with a clean, sharp knife. Remove all the excretion and wash out the cavity with a weak tincture of iodine solution.

DAVIDSON: How about the rest of the hens?

THE DOCTOR: You should dip the heads of all the chickens -- healthy ones as well as sick ones -- into a solution of 1 to 200 silver-nitrate.

DAVIDSON: How do you fix that, Doctor?

THE DOCTOR: Dissolve five grams of nitrate of silver in one quart of rain water --- And when you start dipping the chickens heads begin with the healthy ones first.

Also give all the flock a dose of Epsom salts. Then keep all the drinking water a grape-juice color with permanganate of potash ----- (As if interrupted) -- Where are you going, Davidson? -----

DAVIDSON: Down to the drug store, Doctor ----

THE DOCTOR: Well, wait a minute, -- There's something else for you to do.

You should spread all the litter and manure on the fields or burn it. Scrape the walls, roosts and dropping boards clean. Move out the nest boxes. Empty and scrape them. Clean and scald the feed hoppers and water fountains. Tear out all the rotton wood work and burn it.

And when you've done that, spray the entire chicken house with an approved disinfectant. A 3 to 4 per cent solution of cresol will do.

But don't confine your attention to the chicken house. The chicken runs are also probably infected. Scrape them to a depth of 4 inches. Or plow them under and quick lime them ---- (As if interrupted)

All right, Davidson, go ahead -----

Just a minute, all of you! Next week we will talk about tuberculosis in chickens. You hog men will also be interested in that.

R.F.S. 2/2/27

ANNOUNCEMENT: Please remember that all these poultry talks as well as government bulletins are free for the asking. Send in your comments along with your request for printed information. Next week at this period the U. S. Poultry School will hold forth again.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL FIRST RELEASE Fri. Feb. 4.

SHORT COURSE: Dairy Farm Engineering.

LECTURE NO. 2: Dairy Barn Ventilation.

ANNOUNCEMENT: The dairy radio schoolmaster, who represents the U. S. Department of Agriculture, is going to talk about dairy Barn Ventilation tonight. If you want additional information just write for government bulletins on the subject and at the same time request enrollment in the U. S. Radio Farm School, which entitles you to the 216 printed lessons in booklet form.

(The characters speaking during this lecture are: The Professor himself; and Craddock and Jones, members of the class.)

* * * * * * * *

(Sound as of lowing of a cow inside barn may be introduced here.)

THE PROFESSOR: Well, Craddock, here we are!

I told you I was going to bring the whole class out to see your one-story barn.

CRADDOCK: I'm glad you all came.---- Go ahead and look around all you want to -- Is there anything I can show you? ---

THE PROFESSOR: I just wanted the class to see how you handle the ventilation.

I started to take 'em out to Henry Brunton's place --- so they could get some idea what poor ventilation will do for a dairy barn ---

CRADDOCK: They couldn't tell much about it, now -- he's got it pretty well torn up.

THE PROFESSOR: So I understnad. He's lost a good deal on account of dampness --- It's certainly time he was putting in some sort of ventilating system.

CRADDOCK: Yes, the dampness caused the feed stored in his barn to mold. It rotted the timbers. It rusted the equipment. And, if the truth were known, I guess most of that trouble he's been having with disease among

his cows was due to poor ventilation, too. You can't get clean, wholesome milk except from healthy cows.

THE PROFESSOR: He would certainly have saved money if he had built the barn right in the first place.

CRADDOCK: There's no question about that ----But, Professor, you won't find any dampness on the timbers of this barn.

THE PROFESSOR: That's the reason I brought the class out ----

I want all you men to notice how the ventilating system in this barn is designed to carry off the foul air and at the same time let in fresh air -- without causing a direct draft on any of the cows. The system operates on the principle that warm air, being lighter than cold air, tends to rise, while cold air tends to settle ----

CRADDOCK: It's the King system -- named after Prof. F. H. King of the University of Wisconsin -- He worked it out.

THE PROFESSOR: Yes -- You will all notice the big outlet flue up there at the ceiling. You see it starts there -- and runs right up through the roof ---

JONES: How much air does a cow need, Professor?

THE PROFESSOR: Well, Jones, you see that 10 quart pail at the side of the alley, there? If you had to give a cow her air in that -- you'd have to give her about 6 pailfuls a minute to meet her needs. On the average a cow breathes 116 cubic feet of air an hour ---

And the air she breathes is as necessary for proper nourishment as is the hay or the grain she eats. Unless she gets her oxygen, she can't make use of her feed.

But a cow not only needs air -- she needs pure air. Air that has once been breathed has lost much of its value --- That's the idea here -- That big outlet flue up there acts as a chimney to carry off the warm foul air and moisture which the cows continue to give off all the time.

Now, I want you to notice those small openings into the stable along the sidewalls -- near the ceiling there ----

Those are the inside openings of the fresh air inlet flues -- you see they have dampers on them; so they can be closed when necessary --- After while, we'll go outside and see how they are protected from the weather by a hood ------- What is it, Jones?

JONES: The warm air goes up there by the ceiling -- why don't it go out those openings?

THE PROFESSOR: You'll see when we get outside. The outside opening of each of those fresh air inlets is five feet below the inside opening you see there --- If the outside opening was the same height or higher -- the warm air would get out that way -- but as I said before this whole system is based on the fact that warm air rises and cool air falls.---- (As if interrupted) Well?

JONES: Professor, how did he know what size to make the outlets and inlets?

THE PROFESSOR: How about that, Craddock?

CRADDOCK: That outlet is 2 feet square. That's what they figure is about right for 20 cows.

THE PROFESSOR: Yes, the outlet flue should have an area of about one-fifth square foot per cow, with possibly less area in cold climates and more in warm climates. A flue having an area of 1 square foot would be enough for 5 cows. That's right, a flue 2 feet square, has an area of 4 square feet -- that's enough for your twenty cows.

The area of outlet flues is based on the principle that the air will rise in the flue at a certain rate; thus removing from the barn a certain number of cubic feet of air a minute. An equal amount of fresh air is drawn through the inlet flues. If the outlet foul air flue has an area of 4 square feet, the total area of the fresh air intake flues should equal 4 square feet.

CRADDOCK: That's what mine do. You'll notice I've got 10 inlet flues, five on each side, ten feet apart. Each has an area of one-tenth of 4 square feet. They are 4 inches wide and 16 inches long in 4-inch stud walls.-------

THE PROFESSOR: Right there, I'd like to say, in case you have a barn plastered on the inside, the flues should be protected with suitable insulating material between the flue and the plaster. Otherwise, any moisture which touches the walls at the points where the flues are located will condense.

JONES: Professor, don't the wind outside affect the rate at which the warm air goes out?

THE PROFESSOR: Yes, the amount of foul air removed by the flues varies considerably. In a properly designed ventilator the wind will create an outward suction which will help remove the foul air from below. The higher the outlet flue extends above the roof, the greater will be the

draft.

You'll notice Craddock has dampers at the inside end of the intake flues there. Now look up that straight outlet flue. You notice he has a galvanized iron damper to cut down the draft when it gets too great. Flues containing many bends should be larger.

JONES: We have an old-style slatted cupola on our dairy barn --- How'shthat for a ventilator?

THE PROFESSOR: Don't it give a down draft when the wind blows?

JONES: Y-y-es --- Sometimes it does.

THE PROFESSOR: Well, you know, tests have shown that sudden changes in the temperature of the barn affect the quantity of the milk yield. Your ventilating system should avoid such sudden changes--------

Allright, boys, we'll take a peek at the outside of the barn and then head on back ---- Thanks, Craddock, for letting us look over your ventilation ---- And say, Craddock, I hope you'll be with us next week-- We are going to take a trip to inspect a new dairy house -- you might get some pointers on building one yourself ---- So long!.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM 1.9 In3 FS RELEASE

U. S. Radio Farm School Second Fri., Feb. 4.

SHORT COURSE: Dairy Cattle Breeding.

LECTURE No. 2. Laws of Heredity Applied to Breeding.

ANNOUNCEMENT: Our radio school master is going to talk some deep stuff now but it all sounds very reasonable and sane the way he just explained it to me. It is on the "Laws of Heredity Applied to Breeding." The printed talk goes into more detail and if you are an enrolled student in the U. S. Farm School you'll get it at the end of the course.

(The characters speaking during this lecture are: The Professor himself; and Holt and Merrill, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order! -----

(Sound as of student snapping fingers to get attention)

You men there by the door ---- there are some seats down front here -----

(Sound of finger snapping repeated)

At our last meeting, we talked about the principles of heredity --- Today we want to bring the subject a little closer home -----
(More insistent finger snapping)

Please don't snap your fingers, Holt ----- What is it you want?

HOLT: I have a herd of Holsteins, Professor. They are all choice stock -- black and white --- There is not a red and white cow in the herd ---

THE PROFESSOR: Yes? -----

HOLT: And what's more --- I bought my foundation herd from a reliable man --- And he had nothing but black and white animals in his herd ---

THE PROFESSOR: Well? -----

HOLT: Well, the other day, a calf was born in my herd ---- and it has red color instead of black -----

How do you account for that, Professor?

THE PROFESSOR: Somewhere in that calf's ancestry there were Holsteins with red color.

As we explained last time, certain characteristics are more likely to show up than others. In fact, under certain conditions a dominant characteristic will show up on the average three times to one time for a characteristic that is not dominant.

Take the case you just mentioned. We know that black is dominant over red. Suppose we should mate that Holstein of yours showing red to one showing black color. If the black parent is pure in its transmission of the black, all of the offspring would be black. There would be no red and white calves. Now suppose we carried the breeding for another generation and mated any of these black and white offspring. Three out of four calves in this second generation would be black and white. One out of four would be red and white.

But that does not mean that three out of four will breed true for the black. On the average, one out of three will. The trouble is you can't tell which one will do this. The other two will also show the black all right -- but they still carry in their bodies the ability to transmit red. They are simply masquerading as pure black and white individuals.

HOLT: Then I must have disguised red and white cows in my herd ----

THE PROFESSOR: That's evident in one case, anyway.

HOLT: I thought I was dealing with a breeder who knew his business!

THE PROFESSOR: It's not necessarily his fault --- Hidden traits separate out that way, even when the best selection is followed. But I'd advise you to get rid of that red and white calf ---

Of course, if that was a desirable trait -- that would be just the animal to breed. -----

I hope that this entire class realizes that constant selection is essential for success in cattle breeding. By crossing animals showing desirable characteristics and rejecting those lacking them -- you can eventually fix the good qualities in your herd.

That applies to milk production -- as well as the color of the cow's coat. The process of developing a heavy-producing strain of cows is somewhat more complicated --- because the amount of milk produced by a cow is probably determined by several different hereditary factors, each of which is subject to being separated among the offspring.

It is generally agreed, however, that the ability of an animal to pass on high production to the succeeding generation is governed by factors it receives by chance from its parents.

If the daughters of a particular animal from a high-producing strai are uniformly high milk producers regardless of the producing ability of the othe parent, we say that animal is prepotent, in the transmission of high production. Prepotent individuals may be of either sex -- but in dairy cattle breeding it is through the bull that we get the quickest improvement. The cow has only a few offspring and is often mated to a single bull, whereas the bull is commonly mated to a number of cows. In choosing a herd sire, therefore, you should consider the production records of all his early daughters. If they are uniformly high producers it is reasonable to assume that later daughters will also be high producers --- (As if interrupted) Well, Merrill?

MERRILL: Professor, would all of the sons of a sire prepotent for high production also be prepotent?

THE PROFESSOR: Not necessarily because there is the possibility that some factors for low production may be inherited from their dames. However, continued use of sires which have proved prepotent for high production should materially raise the probability of obtaining a strain of uniformly high producers.

MERRILL: Doesn't age affect the ability of a bull to transmit high milk production?

THE PROFESSOR: There is no evidence that an animal produces one type of germ cell at one time of life and another type later. The factors which determine the inheritance of the offspring, you know, are transmitted through the germ cells of their parents. A bull one year old is as well qualified to stamp his characters upon his offspring as he will be when he's ten years old. --- (As if interrupted) Well, Holt? ---

HOLT: Is the number of calves a cow produces a matter of heredity?

THE PROFESSOR: Well, we lack adequate information on the relationship between the number of offspring of mothers and daughters. In selecting breeding stock, you should study the pedigrees in both the male and female lines, in order to obtain animals whose ancestry in both lines has been prolific.

Mature size and weight are also probably inherited according to a complex scheme. As in the case of milk production, many different factors may be concerned.

Following a cross of two animals of markedly different sizes, y often get a whole series of sizes in the second generation following. Some animals may be larger than the original large parent -- others may be smaller than the small parent, while there may be also a series of intermediate sizes. this kind of thing is, of course, easier to observe in animals where the offspring is greater in number than in the case of cows. It has been noticed in in swine and poultry for example. Where Nature sorts out the sizes that way, it makes the work of the breeder easier.

The extremely large animals resulting from such a separation of large size factors are apparently those which will breed true to largeness. The very small animals are apparently those which will breed true to smallness, while the intermediate sizes are most likely to be those which have the mixed inheritance of smallness and largeness.

By mating the unusually large animals the probability is that you will produce only large animals.

Now next week we will take up the hereditary make-up of the cow.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM..... RELEASE.....

FARM SCHOOL. FIRST Mon. Feb. 7.

SHORT COURSE: Meat Production and Use.

LECTURE No. 3: Quality in Meat.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: The U. S. Radio Farm School which comes to you from the U. S. Department of Agriculture brings a message of interest to the folks who eat meat as well as those who produce it. "Quality in Meat" is the subject. The Professor is at his desk.

(The characters speaking during this lecture are: The Professor himself; and Trent and McAlister, members of the class.)

* * * * *

(Knocking as if in tacking up a poster)

THE PROFESSOR: Can you all see that now?

This poster shows you how to select good beef - -

The top picture represents a cut of common beef --- and the bottom one a cut of choice beef -----

I don't know whether you men on the back row there can read that small print -

In Common Beef, it says, "The lean is dark red. The fat is practically all on the outside and often yellow."

Under "Choice Beef" it says, "The lean is light red. The fat is creamy white." ---- Then, too, you see fine streaks of fat all through the lean. That intermixture of fat and lean makes the beef tender and juicy when it's cooked. They call that intermixture of fat and lean "marbling."

You'll notice this poster advises you to let marbling be your guide to the selection of good beef. Marbling is also an indication of quality in other kinds of meat as well as beef.

The Department of Agriculture is using that poster to teach consumers to demand quality in meat. It's up to you livestock raisers to see that you benefit by that demand by producing quality meat --- (As if interrupted) Well, Trent?

TRENT: You can make any cut of meat tender if you cook it right ---

THE PROFESSOR: Possibly so -- But remember -- flavor and juiciness are twin companions and really are as much a part of quality as tenderness. You can not produce

them in meat which lacks them naturally. The pungent flavor of soup or stew or beefsteak must be inherent in the meat. (As if interrupted) What is it, McAlister?

McALISTER: What causes quality in meat?

THE PROFESSOR: Well, you know the old saying; "What's bred in the bone will come out in the flesh" ---- That has a direct application to meat.

When I see a choice, well-marbled beefsteak ---- I know that most probably behind that high-quality beef steak there is a long line of ancestors -- ancestors which were capable of producing high-quality beefsteaks themselves. That beefsteak wears the badge of quality which indicates that it is one of the Sons of the Beef Revolution.

You know, about the time of our American Revolution, some of the leading stockmen of England began to select for their breeding-herds the animals which showed the best production of high-quality meat. That selection has continued through the generations. Descendants of those select meat animals were brought to this country -- and became the sires of our own great beef herds. Both in this country and abroad, that selection of quality-meat animals is today being more widely practiced than ever before. It is by such selection and breeding as that, McAlister, that you can put quality in your beef --- and the same thing applies to other kinds of meat. If behind a steer there is a line of ancestors that had capacity for producing tender meat, its meat will be the kind that satisfies.

McALISTER: That takes time, Professor ----- How about feeding for quality?

THE PROFESSOR: Well, as I just indicated, the first essential to produce quality meat is an ancestry which produced quality meat. But an animal may have in him the ability to produce quality meat, and never get the chance. Regardless of inherent quality, you must give the animal a chance by feeding it properly. Animals that have been starved or poorly fed from calfhood on, can not produce a quality in meat comparable to the product of a calf that has been well fed and handled.

On the other hand, unless the calf inherits the capacity to make proper use of the feed -- feeding for quality may fail to prove profitable --(As if interrupted) Well, Trent? ----

TRENT: Doesn't corn-fed beef taste better than grass-fed?

THE PROFESSOR: Tastes differ, Trent. Carcasses of grass-fed cattle are often dark-colored as compared with corn-fed beef and the fat is not so white, it's true. But just how much corn feed is necessary to change the quality of a steer fattened on grass, is one of the problems we are just beginning to investigate.

In fact, there is a large unexplored field of study in questions of the influence of certain feeds and other factors upon the quality and palatability of meat. At the present time, the Department of Agriculture in cooperation with 19 of the State experiment stations is engaged in experiments to decide many of these finer points on feeding. However, many years may be needed to find the answers.

But in the meantime, we know in a general way that to produce quality in meat, we must breed for quality and feed well for quality.

And we all know from common, every-day experience that old animals are tougher than young ones. Maturity tends to stiffen and harden all living tissues; whether in the small plant, tree, or animal. Lambs are more tender than mutton. Baby beef is more tender than cow beef. Because the consuming public demands small cuts and tenderness, there has been an increased tendency among stockmen to sell their animals at an early age.

We can say then, that as we know it now, quality in meat depends on three things; ancestry, feeding, and age ---- (as if interrupted) Well? ----

TRENT: Professor, it looks to me as if this so-called high quality meat generally has too much fat in it.

THE PROFESSOR: I'm not so sure about that, Trent. Consumers as a class dislike an excess covering of fat. And occasionally there is an excess and resultant waste. But if you are looking for quality, you should remember that it is always associated with a considerable degree of fatness.

When you shoot a rabbit or a quail or a deer, you are glad when you find it is fat. You know that it will be more palatable. The same thing applies to market meat. If you discriminate against the waste of a good finish, you are doomed to disappointment in your hunt for quality.

Next week we will take up the subject of Federal Meat Inspection by which the meat supply is protected.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Mon. Febr. 7.

NOT FOR PUBLICATION

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 3: Care and Marketing of Hides.

ANNOUNCEMENT: Last week, you remember we talked for a few minutes about care in skinning hides. Tonight our radio schoolmaster will give you some pointers about marketing these hides. Remember please that enrollment in the U. S. Farm School automatically puts you on the mailing list for 24 booklets of printed radio lessons published by the U. S. Department of Agriculture. There is no charge simply send us your name and address.

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(The characters speaking during this lecture are: The Professor himself; and Tabb and McKee, members of the class.)

* * * * * * * *

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order!

We have a real marketing problem before us.

As some one of you pointed out the other day, country hides and skins sell for much less than the hides and skins taken off in the large slaughtering establishments.

More than that, you farmers and stockmen often fail to get enough for your country hides to pay you for the trouble in skinning, handling, and marketing. Many a shipper of country hides or skins instead of receiving a check has been billed for a part of the freight or other expense --- and then wondered why his shoes and harness cost so much.

That starts the vicious circle that ruins the country hide industry. Poor skinning and curing mean poor products and poor pay. Poor pay means worse products and less pay. So the business goes from bad to worse.

In our previous lessons, we've pointed out the first step to break this vicious circle. It is up to you men to produce better hides by using care and uniform methods in skinning, curing, handling and marketing. Use a standard pattern when skinning. Avoid cuts, scores or knife marks. Every cut cuts the price. Leave no flesh, bone, blood or dirt on the hide. They together with improper salting and other careless practices produce decay, discoloration,

hair-slips, ruined grain and result in drastic price penalties. Cure promptly, salt thoroughly and plentifully, bundle properly and send to market ---- (As if interrupted) Well, Tabb.

TABB: We don't get any more for hides when they're good than when they're full of cuts and stains.

THE PROFESSOR: I know, Tabb. Country hides are generally bought on a "flat" basis, without regard to their relative condition and quality.

TABB: I'd like to know what we can do about it, Professor.

THE PROFESSOR: You wouldn't sell a fat steer for the price of an old cow would you?

TABB: No, sir!

THE PROFESSOR: Well, there's no more reason for selling perfect hides and imperfect ones at the same price. Chances are the price will be on the basis of the inferior products. A No.1 hide is vastly better than a glue hide. Why sell one for as much money as the other?

You should refuse the offer of flat payment for a shipment of hides and skins if some are better than others. If you do not, you will never learn that it pays to produce and offer quality products.

Deal only with the concern that will respect your wishes in this matter and treat you squarely. The tanner wants your product in the very best of condition and will pay accordingly. He will back you in your stand for reward according to the merit of your product ---------

Members of the class will please get their paper and pencils ready. ----- (As if interrupted) What is it, McKee?

McKEE: The buyers know more about hides than we do ----- Hides that sometimes look good to us, they grade way down. They may be right -- then again they may not -- How are we going to know?

THE PROFESSOR: The answer to that, McKee, is to learn as much about the commercial value of your product as the buyer. There are grades for hides and skins. They are not standardized. But they are well enough understood to form a basis for trading ---- Cattle hides are classed according to the sex of the animals from which they are taken. There are steer hides, cow hides, heifer hides, bull hides, stag hides, calf and skip skins, etc.

They are further selected according to weights ---- You might note these down ---- Hides weighing 60 pounds up are known as heavies. Lights run from 50 to 60 pounds. Buffs from 45 to 50 pounds. Extremes from 25 to 45 pounds. Kips 15 to 25 pounds. Heavy calf 8 to 15 pounds and light calf from 7 to 8 pounds.

Hides and skins are graded as No. 1. No. 2, and No. 3 or Glues.

Now put down this:

Grade No. 1. must be of good pattern, free from cuts, scores, and butt brands. To get in this grade there must not be more than one cut which is not more than 6 inches from the edge of the hide or five knife marks or 5 grubs.

If a hide has one cut more than six inches from the edge.--- Or more than five knife marks - or five grubs. Or if it has one brand upon the butt portion, one hair slip, one rubbed area, or one sore area where the grain is gone, it is graded as No. 2.

If a hide or skin is badly cut, scored or otherwise mutilated and spoiled or tainted or for any cause not suited for tanning purposes it is graded as a No. 3 or glue hide ------

When you are ready to send a hide to the market remove all excess salt by shaking or sweeping. Bundle properly and tie securely with strong cord or rope. Never use wire.------Well, McKee?

McKEE: Professor, where is the best place to sell hides?

THE PROFESSOR: I'd ship as directly as possible to the big dealer or the tanner. I'd avoid unnecessary intervening marketing agencies. The local dealers and traveling buyers have to make money. What they make you lose. I'd advise you to ship promptly to the most practical and profitable agency whether a dealer or tanner.----- but one that will pay according to quality. Make a reputation for quality product and you will find a profitable market waiting for your goods. -----(As if interrupted) All right, Tabb?

TABB: What portion of the hides marketed in the United States are what you call "country" hides?

THE PROFESSOR: Well, altogether in a year's time we produce 14 million cattle hides. More than five million of those are country hides. We produce 10 million calf skins; and 4½ million of those are country as distinguished from packer hides. We produce 15 million sheep and lamb skins 3 million of which are country skins. And most of the one million goat skins produced during the year are also country products.

But you farmers sell something from the sheep and goats backs besides hides. Next week we are going to some of the problems of wool production.

Before we close, however, I want you to remember this: Flat buying must go before there can be much improvement in the country hide business. You must produce better hides and demand that quality be recognized.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL First RELEASE Wed., Feb. 9.

SHORT COURSE: Incubation

LECTURE No.3.: Hatching with Hens.

ANNOUNCEMENT: The U.S. Farm Radio School starts this evening with another lesson on "Incubation." A good many of us who still set the old hens when they go broody know that there is a right and wrong way to do it. We're going to take a few minutes to discuss the subject "Hatching with Hens." The radio school master will take charge.

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(The characters speaking during this lecture are: The Professor himself: and Godfrey and Newton, members of the class.)

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(Four or five raps --- as if on desk)

THE PROFESSOR: The class will be in order! ----

You men near the door there ---- settle down, please! ----

So far during this course, we've pointed out the importance of hatching early -- and the need for careful selection of the eggs for hatching. Now we want to "brood over" those carefully chosen eggs.

First, we will take up nature's own method of changing fertile eggs into chickens.----------

-------- Gallagher! ---- Suppose you go to the blackboard. Draw us a sketch of a suitable nest for a sitting hen ----------

Parks! ----- You may do the same --- Only make it a series of nests for a number of sitting hens. Write in the dimensions on your drawing. ----

In the meantime, some of you other men may tell us how you set a hen -----

Godfrey! ---- What kind of hens make the best mothers?

GODFREY: Plymouth Rocks, Rhode Island Reds, and Wyandottes make good mothers, Professor. In fact, most hens of the general-purpose breeds..

THE PROFESSOR: Do the heavier class, or meat breeds, such as the Brahmas and Cochins make good sitters?

GODFREY: Yes, sir. But they are likely to be clumsy on the nest.

THE PROFESSOR: How about the Leghorns?

GODFREY: They're not so good for hatching chicks. They seldom get broody ---

THE PROFESSOR: All right, Godfrey.--Now, Newton --- How do you tell when a hen is broody or ready to sit?

NEWTON: When you go near a broody hen she makes a clucking noise and ruffles up her feathers. Then she'll stay on the nest for two or three days straight. ------

THE PROFESSOR: Well, just describe to the class how you go about setting a broody hen.

NEWTON: I pick out a quiet place for the nest --- so the sitting hen won't be bothered by the other chickens. I put a few china eggs in it. Then, after dark, I put the broody hen on that nest. I keep her on the nest of china eggs until the second afternoon. Then I let her off for feed and water. If she goes back to the nest, I take out the china eggs and put under her the eggs for hatching ----

THE PROFESSOR: That's good, Newton. How many eggs do you put under her?

NEWTON: I only put 10 eggs under a hen early in the season -- when the weather is cold. Later in the spring, I put from 12 to 15 under each hen; depending, of course, on the size of the hen.

I shut the hens in the nests. I let them come off only once a day to get feed and water --- and the only feed I give them is scratch grains ---

PROFESSOR: That's right -- corn and wheat are the best ---

NEWTON: If a hen doesn't want to come off the nest -- I take her off. If she doesn't go back in half an hour in ordinary weather, I put her back. But they usually go back of their own accord before there is any danger of the eggs chilling.

THE PROFESSOR: Do you only set one hen at a time?

NEWTON: No. I set two or more at once. Then if any of the hens hatch only a few chicks, I combine the broods. I also test the eggs after they've been under the hens for seven days. I keep out those that are infertile and those with dead germs and put back the fertile eggs. If any more are infertile I put some of the hens back in the laying pens. I reset only enough hens to cover the eggs properly ---

THE PROFESSOR: That's eggs-actly right, Newton. I see you know how to set a hen -----

All right, there, Gallagher ----- Are you and Parks through there at the blackboard. Stand aside so the class can see. -------

Ah, I see --- That figure is an eight isn't it? That's a good size for a nest for a sitting hen --- 18 inches square by 8 inches deep.

I suppose those cross lines represent the light wire cover to prevent the hen from leaving her nest and disturbing other sitting hens. That's a good idea. You might have provided some way to darken the nest slightly --- That would help keep the hens from getting restless. ------

Now I want you to look at that sketch of Parks --- it's a little more ambitious arrangement.

You notice he has a row of nests together. Each nest is 15 inches square. Across the bottom of the front of the row of nests, he has a board six inches high to keep in the straw. Then you see, the rest of the front opens down on hinges. It forms a platform for each row of nests when it's open -----

What's that curved dotted line? --- at the bottom of the nest? Oh, I get the idea now! --- That represents the 3 or 4 inches of damp earth we usually put in the bottom of the nest. It's slightly deeper in the center than at the edges to keep the eggs from rolling from under the hen. Of course, on top of that would go the hay or chaff or straw out of which you would shape the nest. It should be packed down firmly.

That's a good arrangement, Parks -- where a large number of sitters are kept in one room, it is advisable to let them off in groups of from 4 to 6 at a time. That form of nest would make that easy.

I want the entire class to remember, too, that as the hen is closely confined to her nest for 21 days, she must be kept free from lice and mites. You should treat her by applying pinches of sodium fluoride on different parts of her body. You should examine the nest boxes and treat them if you find any of the pests.

You should also look after the eggs and nests every day. Clean them if they are soiled. Take out any broken eggs and clean those that are very dirty. A dry or slightly damp cloth is best. Eggs for incubation should not be washed. If broken eggs are allowed to stay in the nests, the nests may soon become infested with lice and mites. They may cause the hens to become restless and leave their nests. It often results in the loss of valuable sittings of eggs.

But even with the best of care, some hens prove to be fickle mothers. They cause trouble and loss by breaking their eggs, leaving their nests, or tramping on the chicks when first hatched --- (As if interrupted) Well, Godfrey?

GODFREY: Professor, you advised us to hatch early --- but very few hens get broody early ---

THE PROFESSOR: That's so. Early hatching helps to produce pullets which become broody early in the season. But it's true, hens do not always want to set at the time you want them to. That's the most serious objection to hatching with hens. No incubator ever devised by man ever hatched better than a good, well-behaved hen ----- but there's no way to make a hen become broody -----

But we will take up the incubator at our class next week. It is very important for early hatching.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Wed., Feb. 9.

NOT FOR PUBLICATION

SHORT COURSE: Common Poultry Diseases and Worms.

LECTURE No.3: Tuberculosis.

ANNOUNCEMENT: Our second series of poultry lessons deal with diseases, and this evening our topic is tuberculosis, one of the biggest problems the poultryman faces today. You will want additional information on this subject and for that reason we urge you to request the Government poultry bulletins and at the same time enroll in the U.S. Farm School which will bring you the 24 printed booklets containing the 216 printed radio lessons.

(The characters speaking during this lecture are the Doctor himself; and Williams and Hamilton, members of the class.)

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(Two sharp raps --- as if on desk)

THE DOCTOR: Order in the class-room! ----

I warn you poultrymen! --- You have a big fight on!

Tuberculosis is today rapidly spreading through the poultry flocks of this country!

It has become especially destructive in the North and West --- but it exists in practically all parts of the United States.

Every year it is costing you men money --- And a disease like tuberculosis tends to spread.

And, remember this, it is not only a menace to your chicken industry. Much of the tuberculosis among hogs is being picked up from chickens. (As if interrupted) What is it, Hamilton?

HAMILTON: Is tuberculosis in chickens the same as in human beings and cattle?

THE DOCTOR: Not exactly. But the germs of the two types are close kin.

HAMILTON: Well, could a man get tuberculosis from a chicken?

THE DOCTOR: It's possible -- but it seldom happens. But I wouldn't advise you to eat the meat of a chicken you know is tuberculous ----

HAMILTON: How about eggs? Do they carry the germs?

THE DOCTOR: The finding of tubercule bacilli in the eggs of infected hens is extremely rare. There's hardly any danger of acquiring the disease from an egg. But in case of doubt, just cook the chicken or the egg throughly. Thorough cooking will kill the germs.-------

HAMILTON: Doctor, how about the other way around? Can chickens get tuberculosis from people, or cattle.

THE DOCTOR: That's even more unlikely. In fact, experiments show that chickens, pigeons, turkeys, ducks, geese, and many other birds are very resistant to either the human or bovine type of tuberculosis. Parrots and canaries, however, are naturally susceptible to human as well as fowl tuberculosis. They may spread either type.

On the other hand, as I said before, hogs are very susceptible to the bird or chicken type of tuberculosis.

HAMILTON: Is tuberculosis hereditary in chickens?

THE DOCTOR: It is not so considered. ------ Well, Williams?

WILLIAMS: How does tuberculosis start among chickens? ---

THE DOCTOR: Infection may begin by contact with tuberculous chickens or infected flying birds. Or it may be tracked in on the feet of man or animal from neighboring centers of tuberculosis.

The germs are picked up by the birds in feeding-------

WILLIAMS: I didn't mean how it spreads --- I wanted to know how you can tell when a chicken has tuberculosis?

THE DOCTOR: Well, now that's where the trouble comes in. But, of course, you know, it is essentially a disease of mature chickens. It develops very slowly. There are no early symptoms we can rely on. For that reason, tuberculosis is seldom recognized until it has spread to a serious extent. Meanwhile, affected chickens keep scattering the germs.

By the time a few birds show symptoms of the disease or a few die, a large part of the flock may be infected with the disease.

WILLIAMS: But what are the symptoms they show in the advanced stages?

THE DOCTOR: They gradually grow weak. They become thinner and thinner, although they still have a good appetite. Leg or wing lameness with swollen joints may appear. The comb and wattles grow pale. The face has a pinched expression. The plumage is unkempt. After prolonged weakness, death follows.

Post-mortem examination shows that the liver, spleen, intestines, and occassionally the joints are the principal seats of this disease in chickens. The liver is usually swollen and spotted with raised white or yellow nodules.

WILLIAMS: Well, Doctor, in case the symptoms you mentioned show up how would you treat the chickens for tuberculosis --- What's the cure for it?

THE DOCTOR: Get thatidea of cure out of your head, Williams. There is no known cure for tuberculosis among chickens.

WILLIAMS: What would you do, then, Doctor --- if your chickens started to die of the T.B.?

THE DOCTOR: I would call in a veterinarian. I'd have him test the entire flock for tuberculosis. Those chickens which showed by the tuberculin test that they were infected, I would kill at once. If necessary, I'd retest to make sure. If I found heavy tuberculosis infection in the flock, I'd destroy the entire flock -- I'd destroy every bird.

Then I would clean and disinfect all the houses, runs, and utensils which they had used. I'd use a three or four per cent watery solution of cresol and I would wet everything thoroughly with it --- None of this throwing a little here and a little there!.

Besides that, I'd wait several months, or a year if possible, before I restocked. Then I would get my new stock from flocks which I knew were healthy. Any chickens I bought later, I'd quarantine in a separate pen for 30 days to give any sign of disease a chance to show up. (As if interrupted) Well ---

HAMILTON: Doctor, in human tuberculosis don't they advise fresh air, sunshine, good food, and cleanliness? Wouldn't that help with chickens?

THE DOCTOR: Undoubtedly, those things make for chicken health. The sun's rays will destroy germs exposed to them in a short time. In fact, fields and yards are disinfected that way to a large extent. But tuberculosis germs may live for months in dark, covered corners where the direct rays of the sun never reach. That's the reason I advised you not to restock for a year.

And when you do restock, be sure to get chickens which have shown no evidence of tuberculosis for a year. Have all of them tuberculin tested before you admit them to your flock --- Or if you buy eggs for hatching -- be sure that they come from healthy hens.

WILLIAMS: Suppose, Doctor, that the number infested is small or that you don't feel like you can afford to destroy the entire flock? -----

THE DOCTOR: Well, of course, in such cases, the disease can be controlled if you keep at it consistently --- that is, if it's not too far advanced in your flock.

As I said, tuberculosis develops slowly. It is a disease of mature birds. Infection is spread most commonly when the advanced stages are reached. Fowls more than 2 years old are the most dangerous. Therefore, you should get rid of all chickens when they reach the age of two years --- or at the end of the second laying period.

From a business standpoint, that is also sound policy -- for after that time ---- egg yield decreases. But in case of heavy tuberculosis infestation -- complete destruction is the only safe plan.

Next week we will take up the "flu" and try and see what we should do about that.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL. FIRST RELEASE Fri. Feb. 11.

SHORT COURSE: Dairy Farm Engineering.

LECTURE No. 3: Dairy House Construction.

NOT FOR PUBLICATION

ANNOUNCEMENT: This is "dairy night" in the U. S. Radio Farm School and for a few minutes the schoolmaster is going to talk about "Dairy House Construction." If there are any new-comers in the audience who have not registered as students we urge them to do so at once in order that the 24 booklets containing all the printed radio lessons may be sent to them by the U. S. Department of Agriculture.

(The characters speaking during this lecture are: The Professor himself; and Lynn and Craddock, members of the class.)

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THE PROFESSOR: Stand right where you are, men! --------

Before you go in the milk house here --- I want you to notice the outside -- and the arrangement in reference to the barn ---

You'll notice Lynn has built this milk house just a short distance from the stable -- with a passageway connecting them -- But it's an entirely separate building with its own outside entrance.

In other words, it's close enough to the stable so that it doesn't take much extra work to carry the milk from each cow directly to the milk house. Lynn can hustle the milk right in here before it gets any chance to absorb stable odors and can cool it promptly ---------

You dairymen know how important that is --- It's sometimes surprising, even to an old hand, how easily milk gets contaminated. It takes up dirt and odors in a hurry. For that reason, you've got to get it out promptly to a clean, airy place, free from dust, insects, and odors.----------
What are the dimensions of this milk house, Lynn?

LYNN: 10 by 20 feet.

THE PROFESSOR: That's about what I thought--- 20 cow capacity, isn't it?---
-------Now -- you men --- step two or three paces over to the side there -- where you can get a good look at the outside ---

You see it's built of tile with a slate roof ----- It's fireproof, durable, and sanitary.

durable, and sanitary.

Of course, the first cost of such a house as this is high -- but it will probably be cheapest in the long run --- it won't need many repairs --- and no painting. Concrete is another good material for a permanent house. Asbestos-shingle makes a good fire-proof roof, too. But of course, you could make this same general plan of dairy house with brick, stone, cement block, or wood. You could roof it with tile, prepared roofing, wooden shingles, or metal ---- How thick are these walls, Lynn?

LYNN: 8 inches.

CRADDOCK: How thick should they be, if you use concrete, Professor?

THE PROFESSOR: 6 to 8 inches would be about right for concrete walls. Brick outside walls should be 9 inches. Stone from 14 to 18 inches. Frame walls should be 6 inches thick. And cement block the same as these tile walls, 8 inches ----------

Notice the windows and doors. You see they are thoroughly screened to keep out the flies and other insects --- You never want to overlook the fact that insects carry germs. If the place is not properly screened the germs may get directly into the milk or they may be deposited on the clean cooler, the strainer, or other utensils.

And look at that ventilator sticking up through the peak of the roof there -- The outer opening is not only shielded to keep out rain and snow -- but it's also screened to keep the insects from getting in that way ----

Now, if you will all come on in --- we'll take a peep at the inside --This is too big a crowd -- for you all to get the best understanding of the arrangement of the milk room and the wash and boiler room and the cooling tank and other equipment. But we can take a general view of some of the main features. Then afterwards, members of the class can go in one or two at a time, so as to get a better idea of the interior plan.----- Don't crowd, now.

First thing I want to call your attention to the floor --- You should always use particular care in building a milk-house floor -- You see Lynn has used concrete. That's the best material for the purpose. It resists moisture, decay, and wear. Lynn has troweled the top coat hard and smooth, as he should. The whole floor drains to that large bell trap there. It seems to have a good pitch, too. One-fourth inch to the foot is the least pitch allowable in a case like this --- Lynn, --- Maybe some of the boys would like to know what mixture of concrete you used ----

LYNN: Well, the top coat is one inch thick and is made by mixing 1 part cement and 2 parts sand. The base is five inches thick and is made up of 1 part cement, 3 parts sharp, clean sand, and 5 parts stone --- I might

say, here, I got my complete plans free with bill of materials from the U.S. Bureau of Dairy Industry. --------

THE PROFESSOR: Yes. And they have plans for a number of different size dairy houses ------- from 10 to 100 cows capacities . ------

LYNN: This bell-trap in the floor here opens into a 6 inch glazed tile drain which is laid 2 feet deep and has a fall of more than 1 foot to every 60 feet in length. It runs well away from the house. They tell me that's necessary -- and that the rapid fall prevents clogging. ------

THE PROFESSOR: I hope you got that, men. Every milk house should be provided with a proper means of waste disposal. More or less milk is spilled on the floors or washed off the utensils. If you depend on sweeping milky water out the door, you'll attract flies and start disagreeable odors -----

And if you'll look up there at the ceiling, you can see the inner opening of that ventilator we noticed from the outside. That's another way, Lynn gets rid of bad odors. To keep the air dry and sweet, proper ventilation is necessary. Steam and water are apt to make the dairy house damp. That favors the growth of mold and bacteria -----

And, of course, milk houses must be supplied with plenty of cold running water for cooling the milk. They must also have adequate facilities for hot water and steam. Without such facilities, utensils can not be properly washed and sterilized --- but you can look at Lynn's equipment later.

But I want to call your attention to the light in here. There's plenty of it -- and it's well distributed. ----- How much glass have you in these windows, Lynn?

LYNN: Twenty square feet or more.

THE PROFESSOR: Your floor is 10 by 20 --- That would make 200 square feet. You should have at least 10 per cent as much window-glass surface as you have floor space. Yes, 20 square feet of glass is right for this size house. Those sliding sash are a good idea, too. You can work the windows and have screens on the outside without interfering ----

And look at the walls, men --- that cement plaster makes the best inside finish --- it's applied directly to the walls isn't it, Lynn?

LYNN: Yes it is. I used a mixture of one part cement to 3 parts sand.

CRADDOCK: You couldn't put that on a frame house, could you, Professor?

THE PROFESSOR: Certainly -- but you'd have to use expanded metal lath on which to plaster.

CRADDOCK: How about dressed tongue-and-groove lumber for inside?

THE PROFESSOR: Well, it doesn't last long. And it's not as sanitary. In case you use it, however, you should keep it thoroughly covered with a good white enamel paint ---

All right, men ---- outside! ----------And by the way, Cobb -- If it's all right with you, next week I'm going to bring the class out to see that new silo of yours. Thanks, Lynn.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM FARM SCHOOL. SECOND RELEASE Fri. Feb. 11.

SHORT COURSE: Dairy Cattle Breeding.

LECTURE NO. 3: The Genetic Make-up of Cows.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Dairy Cattle Breeding, the subject of the second U. S. Short Course is a rather scientific study, but we believe the schoolmaster can explain this interesting topic so clearly that we'll all profit by it. The printed lesson will give you more details. If you haven't enrolled in the U. S. Radio Farm School do so and get on the Department of Agriculture's mailing list for the 216 printed radio lessons.

(The characters speaking during this lecture are: The Professor himself; and Judson and Lewis, members of the class.)

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JUDSON: ---But I tell you, there it is in black and white! How you going to explain that by the laws of heredity?

LEWIS: The Professor will be here in a minute -- We'll see what he says about it.

JUDSON: What can he say! You can see for yourself. That's a registration certificate from the Holstein Breeders' Association. That diagram is part of the certificate. It shows the black and white markings on my registered cow.

LEWIS: Well, suppose it does? ---

JUDSON: Those black and white marks are diagramed to identify the cow. If every cow didn't have different markings, you couldn't use those marks to identify them, could you? ---

LEWIS: It don't look as if you could --

JUDSON: Of course not. And if every one is different, how's that going to fit in with what the Professor said about the color being inherited according to a regular scheme ----

LEWIS: He was talking about the color -- not about the pattern of the spots on a cow's back. You know he said all cases were not as simple as the ways horns show up in a cross between hornless and horned or black and white shows up in a cross of a black and white with a red and white.

He was very careful to say that there are a good many characteristics which are inherited according to a very complicated scheme - because it is not just the question of the separation or rearrangement of a couple of factors, but of many of them.

You remember he said last time that sizes are sorted out according to a more complicated plan. The capacity to produce milk is another ---

JUDSON: It certainly must be complicated. If there is any general plan in the inheritance of milk production, I'd like to see it. I've looked up the figures.

Do you know that the highest yearly record for milk production by a cow is about 37,000 pounds. That's nine or ten times as much as the average cow gives. And they figure that some cows give as low as 1,000 pounds of milk a year. There' a lot of difference between 1,000 and 37,000 ----

LEWIS: Yes -- but that wasn't in the same breed, was it?

JUDSON: I think it was. But just take the officially tested cows of a single breed. The records range from 8,000 to 24,000 pounds. The best cow produced about 3 times as much as the poorest.

LEWIS: Well, of course, there are a lot of chances for differences in an entire breed. Why don't you get down to one line?

JUDSON: All right. The records show that some of the daughters varied as much as 11,000 pounds from their mothers ----

LEWIS: That might have been due to different bulls -- the bulls transmit milk-producing capacity as well as the cows. Bulls are more important for that than cows.

JUDSON: Just a minute -- I jotted down the figures in my note-book. If you think the bull was responsible, how about this? --- Here it is ---

Here it says in a set of six daughters of one bull, milk production ranged from 8,700 to 20,000 pounds. The record of every daughter also varied from her mother's record by at least 1,500 pounds. One daughter produced 7,000 pounds more than her mother. Another produced about 6,000 pounds less than her mother.

Another group of thirteen daughters of a single bull ranged in production from 8,500 to 23,500 pounds. Still another bull had thirteen daughters ranging in production from 9,000 to 24,000 pounds. The best daughter was from the best mother, but the next best daughter was from the lowest producing cow ----

LEWIS: Ah, what do those figures mean -- These were just half-sisters weren't they?

JUDSON: You can't get around it that way. I've got the figures for full sisters, too. But the differences in production are there just the same. Here it says one set of five full sister cows varied by more than 4,000 pounds in milk production. A set of four full sisters varied by 5,000 pounds. And a set of three full-sister cows varied by 8,000 pounds in the amount of milk they gave. In a set of two one sister produced 21,000 pounds of milk and the other 12,000 pounds. Another pair varied by 8,000 pounds and three others by more than 6,000 pounds ----

(Four or five raps -- as if on desk nearby)

THE PROFESSOR: The class will be in order!

We are a little late getting started -- We haven't much time, so I'll announce now that the subject for discussion next time will be methods of breeding ----

LEWIS: (As if in lowered voice still arguing with Judson) Those full sister cows may vary in milk production according to your figures, Judson --- but how much of that's due to feeding, housing or the handling or the health of the cows. That wasn't the same for all of them --------

THE PROFESSOR: (Raps sharply on desk) What's all that argument about, Lewis? Let's have order!

LEWIS: Professor, he said that every cow's different -----

THE PROFESSOR: He's right. Variation is certainly an attribute of all living things. Two of any species may look alike to you, but when you examine them closely enough, you'll find hundreds of differences in the characteristics and make-up of even very small organisms. In fact, you'll find the same unlikeness exists among the units which make-up a single part -- such as the individual cells of the bones, muscles, or nervous tissue ---

JUDSON: Does that apply to the white and black markings on a Holstein cow?

THE PROFESSOR: Yes. And to the white spotting in Jersey and Guernsey cattle.

JUDSON: How about milk production?

THE PROFESSOR: Yes. Variation exists in all the characteristics governed by the laws of heredity. In milk production the possibilities of variation are so apparently unlimited that they may prevent investigators finding out just how this quality is passed on from parent to offspring. Many of the variations are due to feeding and other influences of environment. But many other of these puzzling differences are due to the separation and recombination of the hereditary units which govern milk production.

Although we do not know just how these separations and rearrangements take place in this more complicated case, we do know how it works in the simpler hereditary qualities. We know from the simpler cases that there is a sorting out of factors and that by wise selection we can increase the chances of getting higher producing cows.

For instance, we know that a bull that transmits high milk production to his daughters is an invaluable asset to the dairy breed to which he belongs. His days of usefullness should be prolonged to the utmost. When such bulls are used in succession, each adds his share toward building a race of uniformly high-producing dairy cattle.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL FIRST RELEASE Mon. Feb. 14.

NOT FOR PUBLICATION

SHORT COURSE: Meat Production and Use.

LECTURE No. 4: Federal Meat Inspection.

ANNOUNCEMENT: This lesson is of interest to everyone, "Federal Meat Inspection" is the subject. The U. S. Radio Farm School comes to you from the Department of Agriculture at Washington. Copies of all the talks already given as well as those which follow will be sent upon request.

(The characters speaking during this lecture are: The Professor himself; and Miller and Boyd, members of the class.)

****

BOYD: That's a good-looking piece of meat, Professor ----

MILLER: What you going to do, Professor, give the class a roast? ----

THE PROFESSOR: No. I just want you all to become familiar with that mark there.

MILLER: I guess everybody already knows that -- ---

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order!

Can you all see this meat -- Notice the little round purple stamp. That's what we are going to talk about -- The meaning of that mark.

You on the first row here can see the lettering. Within that purple circle you see the number of the establishment from which the meat came. Then in the center there is "U.S." and below it the abbreviation for "Inspected and passed."

That's the guarantee that that piece of meat is from a sound, healthy animal and was prepared under sanitary conditions.

BOYD: Anybody could tell that is a good piece of meat -- even without the stamp.

THE PROFESSOR: Well, Boyd, that little purple stamp stands for much more than anyone can tell by merely looking at the retail cut of meat.

That mark means, in the first place, that the animal from which that cut came was inspected for signs of disease before it was driven in to slaughter.

It means that as soon as the animal was killed, every part of its carcass received a searching examination by veterinary experts. The only way to be certain an animal is healthy is to see the carcass inside as well as outside.

As soon as the animal's head was cut off, a Federal inspector examined it by cutting open several lymph glands in search of signs of abnormal conditions. Then he looked at the tongue. He made deep, slicing cuts into the inner and outer cheek muscles looking for cysts that might produce tapeworms. And finally, he gave the head, as a whole, a thorough examination.

Next the internal organs were given a similar thorough examination. After the internal organs, all part of the meat itself were thoroughly searched for any condition that would indicate unfitness for food. When these intensive inspections were completed without the discovery of diseased conditions, every important cut of the meat was marked with the little purple stamp U. S. Inspected and Passed. (As if interrupted) What is it, Miller? --

MILLER: How much of the meat of the country is federally inspected?

THE PROFESSOR: About two thirds of the total meat produced in the United States. The remainder is under State or city authority or receives no official inspection whatever.

You understand, of course, that Federal authority only extends to establishments engaged in interstate business or foreign trade. It does not cover the slaughter of animals or preparation of meats in establishments which conduct their business entirely within a State. Nor does Federal inspection extend to farm-killed animals.

Federal meat inspection is conducted primarily to safeguard public health. But there are various other benefits that come from it.

For instance, records of the work furnish important information on the health of livestock. They show the extent to which meat animals are affected with parasites and disease. In many cases, the centers of infection are discovered and the causes of the trouble are removed. However, the vast majority of the animals slaughtered are found free from serious disease and ailments.

In connection with the inspection of meats, the Department of Agriculture maintains several laboratories. In these laboratories chemists and other trained workers test the purity of salt, spices, condiments, and other ingredients used in meat products. Tests are also made of the water used in federally inspected establishments to make sure that it is pure.

The government's trained laboratory workers engaged in these studies have made important discoveries. They have worked out methods for preventing losses caused by spoilage, rancidity, and deterioration. Inspectors have also developed improvements in the sanitation of packing houses and in meat-

handling machinery and equipment. Such work has resulted in direct benefits or economies to the meat industry.

Then, too, the foreign trade of the United States in meats and meat products is based on Federal meat inspection. All important foreign countries require that meats which come from the United States shall bear the evidence of thorough Federal inspection. (As if interrupted)

MILLER: How many animals are inspected each year?

THE PROFESSOR: The Federal meat inspection service extends to more than 60 million animals annually.

MILLER: Doesn't it cost a good deal to do all that inspecting? Doesn't that make our meat cost more?

THE PROFESSOR: Well, the entire cost of inspection --- And in that I include the examination of live animals, post-mortem inspection, and supervision of the meat until it leaves the establishment amounts to about one cent for every fifty pounds of meat.

The cost averages only about 6 cents for each animal inspected. In a year's time, it amounts to about 3 cents per capita of population. In other words, that little purple stamp and all it stands for costs but little when you consider the importance of the protection of this item of our national food supply.

BOYD: But, Professor --- what kind of ink do they use to make that purple inspection mark?

THE PROFESSOR: You needn't worry about that, Boyd --- the fluid used is absolutely harmless --- just as harmless as fruit juices.

MILLER: What happens to the meat that doesn't pass inspection?

THE PROFESSOR: It's converted into grease and fertilizer. However, some small plants destroy it by burning or make it unfit for food by the use of crude carbolic acid.

MILLER: Suppose they refuse to destroy it after the inspectors have condemned it? What does the government do about it?

THE PROFESSOR: The meat inspection law passed by Congress in 1906 provides that the Secretary of Agriculture may withhold inspection from any establishment which fails to destroy for food purposes any condemned carcass or part thereof. As all meat shipped interstate or to foreign countries must first be inspected, that would be a severe blow to any establishment. The meat must be destroyed in the presence of the government inspector -- you can bank on it, that little round purple stamp means safety to health.

Next week we will talk about storage of meat for summer.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM..... RELEASE.....

U. S. RADIO FARM SCHOOL (Livestock) Second Mon. Feb. 14.

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 4: Problems in Wool Production.

NOT FOR PUBLICATION

ANNOUNCEMENT: The second lesson is of principal interest to sheep raisers. "Problems in Wool Production" is the subject. The U. S. Radio Farm School comes to you from the Department of Agriculture at Washington. Copies of all the talks already given as well as those about to follow will be sent upon request.

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(The characters speaking during this lecture are: The Professor himself; and Cameron and Armstrong, members of the class.)

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(Four or five raps --- as if on desk)

THE PROFESSOR: The class will be in order! --------

In this course up to this time, we've been discussing hides and skins. Now we want to say a few things about how to grow good wool ----------

Just a minute, there, Cameron! --- Where are you going? -- Don't you want to know how to grow wool? ----

CAMERON: Huh --- Any practical sheepman with feed and common sense can grow good wool! ---

THE PROFESSOR: That's probably true, Cameron.

But common sense is not so common as it might be --- and if you are going to make the greatest success out of wool growing, you will have to have plenty of sheep feed -- and you will have to know what good sheep feed is and how, when, and where you can always be sure to have a good supply.

As you and other members of this class probably know, good sheep feeds include not only the very important legume hays -- but also the palatable and nutritious grasses of the pastures and ranges.

These feeds will make sheep grow and will bring in satisfactory profits. But it is a real man's problem and it is an everyday problem with the successful wool grower to figure out the number of sheep he should carry for the coming year. You must gauge the size of your flock by your supply of feed so that you will be sure to have some feed left over the following spring.

In feeding for wool production, you should have a definite plan and follow it ----- (As if interrupted) What is it, Armstrong? ---

ARMSTRONG: How does feeding affect the wool? ---

THE PROFESSOR: The wool is always better when the sheep have had enough feed. A period of undernourishment may cause a weak place in the fiber of the wool which will quickly lower its value. And you should also take care to keep the wool as clean as practicable, on all kinds of feed.

ARMSTRONG: You can increase the length of the wool and the weight of the fleece by breeding, can't you, Professor?

THE PROFESSOR: Yes. Most certainly. But not by hit-and-miss breeding --- by carefully following a definite breeding plan. And in breeding for wool production you should aim to have sturdy, uniform sheep. You should use rams whose offsprings have proved to be good producers ---- (As if interrupted) Well, Cameron?

CAMERON: It's not practical for me to get around the country looking for proved rams --- I have to buy on looks.

THE PROFESSOR: Well, in that case, it's a good plan to test the ram out with a few ewes -- before using him on a larger scale.

If the sheepmen in your neighborhood raise the same breed or type of sheep you do, you might go in with one of them and buy a better ram than either of you alone would care to pay for. When the daughters of such a ram are ready to breed, he may be sent to another flock in the neighborhood in exchange for one that has been siring good lambs but is too closely related to the ewes in his flock. But it's always safest to buy rams whose offsprings have proved to be good producers, don't forget that.

ARMSTRONG: Well, Professor, how about culling?

THE PROFESSOR: Of course, you should cull the small, inferior animals and those producing light-weight fleeces. That should be part of your regular breeding program. You can do that easiest by marking them at shearing time.

ARMSTRONG: Professor, out our way, we weigh the fleeces as they are sheared and then cull the sheep on the basis of the weights. Is that a good way?

THE PROFESSOR: Yes, that's a very good plan. Unless, of course, you know the animal you have marked for culling is more profitable for some other reason. ---------- Another thing, I want to call to your attention is the need for frequent examination of the condition of the sheep. If you are going to grow wool successfully, you must watch your sheep. Sick sheep and poor feeders should be given extra attention. If possible, they should be kept by themselves until they are in good health.

You should dip your sheep at least once a year to free them from ticks, lice and other skin parasites. A convenient time for dipping is shortly after shearing in the spring or early in the fall. The weather is usually favorable about that time.

ARMSTRONG: What do you mean"shortly after"shearing.

THE PROFESSOR: Oh, about 10 days after --- long enough so the shear cuts will have time to heal before you put the animals in the dip.

To eradicate ticks the sheep should be dipped a second time about 24 days after the first dipping --- the interval varies with different kinds of parasites.

As you know, dipping is especially important in the case of lambs. The lambs feed better and grow better wool when they're not pestered with parasites.

And another thing, in branding sheep and lambs, you should be very careful to use a branding paint that will scour out when the wool is cleaned. Don't use tar or barn paint. And no matter what branding fluid you use, don't put it all over your sheep. Use as little as possible. Put the brand mark as far toward the rump of the sheep as practical. The wool upon and near the shoulder is the most valuable in the fleece. It should not have branding paint put on it.

Now next week we'll take up the matter of sheep shearing.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM..... RELEASE.....

U. S. RADIO FARM SCHOOL FIRST Wed. Feb. 16.

NOT FOR PUBLICATION

SHORT COURSE: Incubation.

LECTURE No. 4: Advantages of the Incubator.

ANNOUNCEMENT: We start our regular Wednesday evening session of the U.S. Farm School with a lesson on the "Advantages of the Incubator." Remember, please, that all these talks, 216 of them are available in printed form and that a simple request for enrollment will bring them to you from the U. S. Department of Agriculture.

(The characters speaking during this lecture are: The Professor himself; and Parks and Perkins, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: Order! --------Parks, you may recite.--------

Tell the class why you use an incubator --- Why don't you rely altogether on the old broody hen?------

PARKS: I keep Leghorns, Professor. They're not much for sitting ------

THE PROFESSOR: Suppose you had egg-bred Plymouth Rocks, Rhode Island Reds, or Wyandottes? -------

PARKS: Even among those breeds, broody hens are sometimes scarce----- especially early in the season -------

THE PROFESSOR: Ah! ---that's the point I wanted to bring out!------ The outstanding advantage of the incubator is that chicks can be hatched earlier in the season ------

Of course, as you say, sometimes there are very few broody hens even among the Rocks and Reds. In fact, I know some flocks that have practically had broodiness bred out of them -- in such cases an incubator is a practical necessity --- but what other advantage is there in using an incubator?

PARKS: Well, with an incubator you can hatch a few or several hundred chicks at one time ----

THE PROFESSOR: That's right. By hatching earlier and in larger units you can put the cost of reproducing the flock on a better business basis -- and with the use of the coal-burning brooder stove that problem of reproducing the flock from year to year is very materially simplified ---- (As if interrupted) What is it, Perkins?

PERKINS: What's the best number of chickens to keep --- That is, to get the best market for eggs?

THE PROFESSOR: That's something for each of you to decide for yourselves -- I might say, however, that about 200 or 400 in a flock are good numbers from the standpoint of marketing and management ---

Too many of you men fail to realize that one reason why you don't get a higher average price for your eggs, is because you sell them ungraded. Small eggs and bad eggs marketed with good ones bring down the price received for all. Where only a few eggs are obtained from a small flock, you are less likely to grade the eggs than is the case when you have a good-sized flock.

Another advantage in farm-flock units of 200 or 400 chickens is that you can divide them up easily for breeding purposes. For instance, if you have 200 chickens-after removing the male birde - you can divide them into 50 yearlings and 150 pullets. Or with a flock of 400, you can have 100 yearlings and 300 pullets. The pullets would be used primarily for egg production and the yearlings for breeding purposes ---- Parks -- Why should you use yearlings rather than pullets for breeding?

PARKS: The yearlings lay bigger eggs -- the bigger eggs hatch bigger chicks ----

THE PROFESSOR: Yes, bigger and stronger chicks. The yearling hens have gone through a molt during the fall -- they've had a rest before the breeding season. For that reason, they usually produce stronger chicks than pullets do ---Do you know any other reason, why yearlings should be selected for breeding?

PARKS: Well -- They're the best of the pullet flock of the year before. By using them, you ought to be able to improve the quality of pullets raised each year.

THE PROFESSOR: Good. That's an even more important reason. Continuous selection is the way to improve your flock. You should give more attention to the selection of your breeding stock every year. Flock units of 200 or 400 chickens will enable you to do it ---- (As if interrupted) Well, Perkins?

PERKINS: How many eggs would you set to keep the flock up to that number?

THE PROFESSOR: For a flock of 200 chickens, I'd set 700 eggs. For a flock

of 400, I'd set twice that many or 1,400 eggs.

PERKINS: How do you figure how many to set, Professor?

THE PROFESSOR: Well, in the case of a 200-bird flock, for instance, where you are going to place 150 pullets in the laying house each year, let's suppose you are going to bring them off in two hatches.

That means that you should raise at least 175 pullets to maturity -- because you will want to cull out 25 of the poorer ones. To get 175 pullets would mean that you would have to raise a flock of 350 chickens -- for about half of them would be male birds.

But you can't count on every chick hatched living to maturity. Allowing for about 15 per cent mortality during the rearing season, would mean that you would have to hatch 420 chicks to have 350 in the fall of the year; 420 chicks hatched in two hatches would mean 210 chicks at each hatch.

As we've pointed out before, all eggs are not fertile eggs and all fertile eggs do not hatch. Of course, with careful selection and care in management and selection of the breeding stock, you should get more than a 60 per cent hatch. But that's about average. Therefore to get those 200 odd chicks you would have to set 350 eggs at each hatch. For the two hatches, you would have to set about 700 eggs.

If you wished to maintain an adult flock of 300 pullets and 100 yearlings, you would have to double the number of chicks hatched,----- (As if interrupted) Well, Parks?------

PARKS: Which is the best kind of incubator? -- The hot-air or the hot-water type?----

THE PROFESSOR: One is about as good as the other. Both styles are used successfully in all parts of the country. The hot-water incubator will hold its heat longer than the hot-air machine in case the lamp should go out --- but the possibility of such an accident is too slight to be worth considering when the incubator receives proper attention.

Cheap machines are, of course, less reliable than higher-priced ones. They require more attention and wear out more quickly. As the value of the incubator is small compared with the value of the eggs used during the normal life of such a machine, it is poor economy to buy an incubator which is not reliable.

Whenever possible it is well to select an incubator which is giving satisfaction in your vicinity. Then you can get the benefit of the experience of other operators around you. ------Yes?

PARKS: What's the best way to supply moisture during hatching?

THE PROFESSOR: Well, Parks, we'll get around to that question next week -- when we take up the operation of the incubator. If you are to get a good hatch from your incubator there are several things you should keep in mind. But we'll touch on those next time.

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U. S. RADIO FARM SCHOOL — SECOND — Wed. Feb. 16.
UNITED STATES DEPARTMENT OF AGRICULTURE — NOT FOR PUBLICATION — OFFICE OF INFORMATION
Radio Service

SHORT COURSE: Common Poultry Diseases and Worms.

LECTURE No. 4: Infectious Bronchitis of Fowls.

PROGRAM..... RELEASE.....

ANNOUNCEMENT: Right now poultry diseases are prevalent and it's a good thing the radio school master has this subject on his schedule. You will want the printed copies of all these talks and we urge you to make your request at once.

(The characters speaking during this lecture are: The Doctor himself; and Hubbard and Bruce, members of the class.)

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BRUCE: What's the Doctor going to tell us about this time?

HUBBARD: The "flu".

BRUCE: What do you mean, "flu"? Flew over the coop? ----

HUBBARD: No, I guess it's "flu" IN the coop -- They say it's spread easily by overcrowding ----

BRUCE: What is it?

HUBBARD: The "flu" ---- influenza ---- infectious bronchitis is what the Doc calls it.

BRUCE: I never heard of it ----

HUBBARD: Well, where have you been? They can tell you about it in the big, poultry-feeding establishments of the Middle West! It gets a lot of chickens in the fall and winter. It also hits the rail shipments of chickens to the principal poultry markets pretty hard ----

BRUCE: Here comes the Doc now ---

HUBBARD: Well, ask him -- if you don't think I'm right ----

(Two sharp raps -- as if on desk)

THE DOCTOR: Order in the class!

To-day we have another mysterious chicken disease. We know that

infectious bronchitis or "flu" in poultry is caused by a specific infective agent. But we do not yet know the exact nature of the germ. It is another of those which have so far defied detection by the microscope.

But whether we can see it --- or draw its picture -- is not our main concern now. I want to point out to you how to treat it and how to prevent it.

You all understand, I take it, that infectious bronchitis or the so-called "flu" of fowls, is readily transmitted among a flock by direct contact of infected with non-infected chickens. The things which tend to lower the bird's resistance favor the "flu". Such things as overcrowding, long shipment, chilling, and undernourishment permit it to spread rapidly. (As if interrupted) What is it, Armstrong?

ARMSTRONG: Does it get the young ones as well as the old ones?

THE DOCTOR: Yes. In fact, the young roosters and pullets are more susceptible than older fowls.

ARMSTRONG: How does it show up? What are the symptoms? ---

THE DOCTOR: The chickens have a hard time breathing. You will see infected chickens stretch out their necks and open their beaks every time they try to take a breath. Usually obstructions in their windpipes cause them to make a rattling noise.

They also become ruffled and unkempt. You can see distress in the expression of their faces. They quickly lose their appetites. In many cases, there is sticky matter in their mouths and nasal cavities. ----

ARMSTRONG: Do they always die from it?

THE DOCTOR: No. They may recover. In many cases, however, they die in 3 or 4 days after exposure. Or they may last for a week or 10 days. Apparently, what kills them is the stoppage of the air passages. They are asphyxiated by the matter which collects in their windpipes.

Autoposy shows no significant injury except an inflammation of the nasal tract and windpipe which are blocked up by matter that is often blood tinged. Some cases show pneumonia but they are the exception. They probably represent the more chronic form of the "flu" ---- (As if interrupted) Well, Hubbard, what's your question?

HUBBARD: I want to know how to prevent its getting among my chickens --- and how to cure it in case it does turn up ----

THE DOCTOR: Certainly, that's what we are all interested in.

As for the treatment, individual cases have been benefited by the repeated mechanical removal of the dried plug of matter from the windpipe.

That and the feeding of a gelatin capsule containing 3 drops each of beechwood creosote and oil of eucalyptus, and 6 or 8 drops of castor oil or sweet oil -------

Now , did you all get that. Put that down in your notebooks. I'll repeat it. Three drops of beechwood creosote, 3 drops of oil of eucalyptus, and 6 or 8 drops of either caster oil or sweet oil.

HUBBARD: Do you have to treat each chicken individually?

THE DOCTOR: Well, for a flock treatment you can feed a moist mash with reduced doses of the beechwood creosote and oil of eucalyptus. That's been reported as beneficial in some cases ----

ARMSTRONG: Will the chickens eat a mash with that medicine in it?

THE DOCTOR: They will if the odor of the drugs is not too pronounced, especially at first. If you will withold other food for the time being, they will be more likely to take the medicated ration first. ----

Now, as for the matter of prevention, I'm just going to leave that up to you, Hubbard. We've talked disease prevention. You should know what to do in the case of most germ diseases. Just tell the class, what you,from your knowledge of prevention in other diseases and your own common sense, would do to prevent "flu" getting in your flock.

HUBBARD: I'd clean and disinfect the premises.

THE DOCTOR: That's correct. Rigid sanitary measures are of prime importance in dealing with disease. What else?

HUBBARD: Well, I would quarantine any birds that looked sick.

THE DOCTOR: That's right. Always promptly separate the sick birds -- and put them where they can't infect the others --- Too many people neglect that. What else? ---

HUBBARD: I'd see that the houses were dry and comfortable. That the flock had plenty of room. And that the quarters were properly ventilated.

THE DOCTOR: Good. If you carry out those measures, you will certainly help prevent the spread of the "flu". You should also bury or burn all carcasses of chickens which may have become infected.-----

But we'll call on you again next week. We are going to discuss chicken pox. I'm going to let some of you tell the rest of the class what you would do, are doing, or have done to prevent the spread of chicken pox.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL. FIRST RELEASE Fri. Feb. 18.

SHORT COURSE: Dairy Farm Engineering.

(NOT FOR PUBLICATION)

LECTURE No.4: Essential Features of Silo Construction.

ANNOUNCEMENT: With Friday again comes the U. S. Dairy Farm School, featuring tonight the subject of "Silo Construction." The best way to talk silos is to stand along side one and size up its good and bad points. That's the reason for the little trip our radio professor is taking us on now.

(The characters speaking during this lecture are: The Professor himself; and Bailey and Walker, members of the class.)

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THE PROFESSOR: Come on, men --- It must be over this way ----

BAILEY: Maybe we came up the wrong road, Professor ----

THE PROFESSOR: No-o. I'm pretty sure this is Cobb's place --- When we get through the orchard here, we ought to be able to see the barn -- and the silo.

WALKER: Who suggested this short cut, anyway?

BAILEY: I dunno. I can't see the idea of the trip at all. Just because Cobb has the kind and size silo that suits him - is no sign it'll be the kind for me --

THE PROFESSOR: That's true, Bailey. But there are certain essential features which must be considered in building any silo. I wanted the class to see ----

BAILEY: What I want to know, is what materials I'll need and how much of each, I know what kind of silo I'm going to build --

THE PROFESSOR: Well, than - just write to the Bureau of Dairy Industry at Washington. Tell the size and kind -- and they'll send you a complete list of the materials you'll need -- free of cost ------ Ah! there you are, men! There's Cobb's silo -----

WALKER: It's about three times as high as it is wide -- it must be about 30 feet high.

THE PROFESSOR: Well Walker, the height should not be less than twice and not more than three times the diameter. Of course, the height depends on the amount of silage you need during the silage feeding season. But if the silo is less than 24 feet high the quality of silage will not be the best -----

WALKER: Why is that, Professor?

THE PROFESSOR: Well, the silo must be so deep that the pressure from above will thoroughly pack the silage and force the air out. The greater the pressure the less air is left in the mass of silage. And the less air in the silo the less will be the loss of feed by fermentation.------

Come on. Let's get a close-up of that silo ---

Notice that dormer window in the roof -- That's better than a simple trapdoor to let in the blower from the cutter ---

BAILEY: Does a silo absolutely have to have a roof?

THE PROFESSOR: Well, it's not needed to keep the silage. But it does add to the looks, the life, and the stability of the silo. It makes the silage slower to freeze, it keeps the snow and rain out, and it keeps the pigeons from using it as a feeding ground.---

And this round form of silo is the only kind to build. It's not only cheaper than the square or many-sided types of the same material, but its walls are more rigid and there are no corners. That helps keep the silage better.

BAILEY: How do you figure what the diameter of the silo should be, Professor?

THE PROFESSOR: A good many farmers make the mistake of making the diameter too large. Of course, the diameter depends on the amount of silage you expect to feed a day. You should take silage off the top at the rate of 1 1/2 to 3 inches a day, depending upon climatic conditions. The warmer the weather, the more silage you should take off to prevent spoiling.

Knowing the quantity of silage to be fed, it is easy to estimate the diameter which should be used to permit the removal of a certain number of inches. Of course, the weight of a cubic foot of silage varies according to the pressure - but in a 30 foot high silo it averages about 40 pounds.

BAILEY: How much silage will the average cow eat?

THE PROFESSOR: Oh, a 900-pound cow ordinarily eats about 30 pounds a day and a 1,200-pound cow about 40 pounds. Yearlings eat about one-half as much as mature animals. Fattening cows eat from 25 to 35 pounds for each 1,000 pounds live weight. A sheep takes one-eighth as much as a cow. Horses should be limited to 15 or 20 pounds a day.-------

Here we are, men ----Ah -- The barn door is open. You'll notice this silo is just a few feet from the barn -- It opens into a separate room ---- That helps keep the silage odors from getting in the stable at milking time.

BAILEY: Professor, what do you think about building the silo inside the barn?

THE PROFESSOR: Ordinarily a silo doesn't need the protection of a barn. It's not economical to use barn space for that purpose.--------

Now, all of you, take a look at these silo doors --- you see Cobb has continuous doors all the way up. The only obstructions are the cross pieces at the hoops. They prevent the doorframes from spreading -------

Here --- examine this lowest door --- You can see how they're built. You'll notice that they're plenty big for a man to get in. The usual size in a silo with separate doors is about 20 inches wide by 30 inches high with a 2 1/2 to 3 foot space between --- but this continuous door arrangement is more convenient for getting out the silage ------

Stick your head in here, Walker ---- Look up at these inside walls. They look smooth and plumb all right! -- No chance for silage to stick to them and cause air spaces! -- And you notice the doors all fit flush with the inner walls. Each of them is supposed to form an air tight joint with its frame -----

I see Cobb has washed the inside of the concrete to make the walls air tight. He told me he was going to use raw coal tar thinned with gasoline.----Keeping silage depends on shutting out the air. If you ever build a silo of wood, Walker, you should be sure the lumber is well matched and has no large knots in it. It's very important to keep out the air.

Now notice the bottom there. Not more than five feet below this door, is it? If it were deeper than that, it would be hard to lift the silage out.

WALKER: What's the idea of that hole in the middle of the concrete floor there, Professor?

THE PROFESSOR: That opens into a tile drain. He leaves it open when the silo is empty so the water will not collect and rot out the bottom of the staves. When Cobb starts to fill the silo, he'll just put a loose fitting wooden plug in that drain opening.

If the earth at the bottom there was firm, well drained, and comparatively dry, he could get along without a floor.

But it's always a pretty good idea to have a concrete floor. It makes the silo easier to clean and keeps the rats from burrowing under the foundation and getting at the silage ----

All right, now men, two or three of you at a time take a look inside ----

BAILEY: What's the width of the foundation here, Professor.

THE PROFESSOR: I'm glad you asked that Bailey. I don't know what Cobb has here. But the foundation of a silo should receive special consideration. A large part of the silage as well as the weight of the walls must be supported by it. It should have its base on firm soil and should extend below frost line. Of course, the base should be wider in loose soils than in clay soils to prevent the walls from cracking and settling out of shape. The width of the foundation wall varies from 10 to 30 inches, depending upon the character of the soil--------

What's that you say, Tims? You've got to hustle home? Alright, -- be sure and be on hand next week, we are going to talk about calf pens and stables.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL. Second RELEASE Fri. Feb. 18.

NOT FOR PUBLICATION

SHORT COURSE: Breeding Dairy Cattle.

LECTURE No. 4: Systems of Mating Dairy Cattle.

ANNOUNCEMENT: The U. S. Radio Farm School continues this Friday with the series of lessons on "Breeding Dairy Cattle". This business is a science and one which it pays to study carefully. The discussion is given in more detail in the printed talks which are sent to all enrolled students. If you are not a member of Uncle Sam's Radio School now is a good time to register.

* * * * * * *

(The characters speaking during this lecture are: The Professor himself; and McClure and Dryden, members of the class.)

* * * * * * *

(Four or five raps -- as if on desk)

THE PROFESSOR: A little order please!

(Raps on desk harder) The class will please calm down!

I know there's a difference of opinion between some of you in regard to the matters we are now going to touch upon. But let's discuss these things in an orderly way -- (As if interrupted) -- I'm doing the talking, Judson --- your chance will come later ---

In our talks heretofore, we've discussed the fundamental principles of heredity. Today we are getting down closer to the application -- to practical breeding.

But - Dryden ----- before we mention methods, let's see what we understand by such terms as inbreeding, linebreeding, and outcrossing. What do you understand by the term an inbred animal?

DRYDEN: Animals are inbred which have some of the same ancestors.

THE PROFESSOR: Broadly speaking, maybe so. But in ordinary usage inbreeding denotes 50 per cent or more of common ancestry. Under this head would come matings of brother to sister, son to dam, and sire to daughter. This kind of inbreeding is also called in-and-in-breeding or close breeding ------ What is linebreeding? ---

DRYDEN: That would include such matings as grandparent to grandchild, cousin to cousin, and nephew to aunt, wouldn't it, Professor?

THE PROFESSOR: Yes. Linebreeding comes a step farther down in the closeness of breeding. While inbreeding indicates more than 50 per cent common ancestry, linebreeding ranges from 25 to 50 per cent common ancestry. ----All right, Dryden, what's an outcross?

DRYDEN: That's where there's less than 25 per cent common ancestry.

THE PROFESSOR: That's right. Of course, outcrossing, strictly speaking, presumes matings where there is no relationship whatever. But all of our pure breeds of dairy cattle have developed from relatively few foundation animals. A thorough search of the ancestry of any individual is certain to reveal some relationship between its sire and mother ---- even though the relationship may be very distant. However, since the influence of remote ancestors is negligible, it is generally accepted that when we speak of outcrossing we refer to matings where there is less than 25 per cent common blood. Each of the systems of mating has its advocates and defenders ----- (As if interrupted) Well, McClure?------

McCLURE: Does any good breeder advocate inbreeding?

THE PROFESSOR: It's true --- It's generally avoided -----

DRYDEN: Professor, isn't improvememt of most breeds of dairy cattle brought about by inbreeding?

THE PROFESSOR: Yes. That's true too.

McCLURE: The reason for that is that the breeders' don't have enough desirable animals at their disposal. They have to mate closely related animals to establish the good qualities of the breed -- but they don't do it if they can help it.

THE PROFESSOR: Yes, but actual trials with both plants and animals have proved the genetic theory that mating of closely related individuals is the surest and quickest way to fix in the offspring the qualities of the parent stock ----

McCLURE: Isn't there danger of bringing out the bad traits as well as the good?

THE PROFESSOR: Undoubtedly. Through continuous selecting and inbreeding, it is possible to eliminate from a race the undesirable characters which are present in the original stock. Experiments have demonstrated, however, that latent weaknesses, such as decreased vigor may result from prolonged inbreeding.

DRYDEN: How are we going to fix desirable traits then?

THE PROFESSOR: Well, linebreeding is usually advocated as the method of mating which will accomplish many of the desirable results of inbreeding. But that has not always proved true. Linebreeding, however, is the system which has resulted in the development of so-called families in the various breeds of dairy cattle. Ordinarily the family is composed of the descendants of a well-known individual. Fame as a producer or as a show animal may at any

time establish an individual animal as the fountainhead of a new family.

DRYDEN: Won't mating animals of two families tend to increase the vigor of the offspring.

THE PROFESSOR: Yes, outcrossing is often neglected where it might result in much progress. For example, in the use of proved bulls outcrossing may often be practiced to advantage.

McCLURE: Would you advise using an outcross bull, where a breeder has built up a reputation in connection with a family name of his cattle.

THE PROFESSOR: When you discover animals, particularly bulls, of known ability to transmit high production qualities, use them --- regardless of family or relationship. There is no reason to believe that factors governing the production of milk and butterfat differ in animals of the same breed, no matter what the blood lines or family relationships may be.

Many advocates of linebreeding would probably admit that their first substantial forward step came through the use of an outcross bull.

However, we will go into the use of the bull a little further next time.

I want you all to understand that in breeding dairy cattle there is no shortcut to success. Yet we do know that progress will surely follow the use of animals of known transmitting ability.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION
U. S. RADIO FARM SCHOOL. SECOND Mon. Feb. 21/27.

PROGRAM (NOT FOR PUBLICATION) RELEASE

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 5: Marketing Wool.

ANNOUNCEMENT: This second lesson is of principal interest to sheep raisers, "Marketing Wool" is the subject. The U. S. Radio Farm School comes to you from the Department of Agriculture at Washington. Copies of all the talks already given as well as those about to follow will be sent upon request.

---ooOoo---

(The characters speaking during this lecture are: The Professor himself; and Nelson and Downs, members of the class.)

(Four or five raps -- as if on desk)

THE PROFESSOR: All right! --- Members of the class will please give me their attention! --------

If one or two of you over near the window there will stop wool gathering -- we can go ahead with wool production -----

Last week we talked about how to grow good wool.

Now, looking ahead to shearing time, I suppose you all realize that you should shear sheep when their wool is absolutely dry. You should never shear them when there is any moisture in the fleece.

You should never shear sheep on the dirt. Place them on a smooth, dry surface --- preferably a planed board flooring ----

And take care that you keep the fleece intact. Carefully avoid second cuts -- they reduce the average length of the staple ----------

(As if interrupted) Well?

NELSON: Professor, it seems to me that selling wool is the important thing -- I've grown good wool and sheared it well -- and then lost money when it came to selling -

in the United States that offers as many opportunities for skillful merchandising as wool. And there is scarcely any product in the country that is sold with less skillful methods -----

DOWNS: Why's that, Professor?

THE PROFESSOR: Well, Downs, practically all of the wool produced in this country passes through the hands of merchants whose interest it is to buy wool at the lowest price and sell it to the manufacturer at the highest price. You would hardly expect them to introduce a system which would cut down their profits ----- (As if interrupted) Yes?

DOWNS: Is there anything the wool growers can do about it?

THE PROFESSOR: Yes, there is. Undoubtedly some of the responsibility for the failure to introduce improved methods rests squarely on the shoulders of you wool growers.

NELSON: Huh! --- In our section, we tried to improve things several years ago. But where did we get? We organized marketing associations. Pretty soon we found we were just competing with other wool growers' associations -----

THE PROFESSOR: Yes, I know. And many of the organizations formed at that time were unsuccessful because they didn't know either wool or merchandising ---

Wool, you understand, is an intricate commodity. In order to sell it at the best advantage, you must know the technical manufacturing properties of wool. The wool merchants had that knowledge --- but many of the farm associations lacked it.

NELSON: Yes and you couldn't get them together.

THE PROFESSOR: Well, of course, no one definite system of selling could be devised which would fit all sections of the country. Wool production is conducted very differently in different sections and districts. What may be a successful plan for one section would probably not be suited for any other section.

In the East where sheep are kept as a part of diversified farming, the clips are not large enough to market each clip separately direct to central markets. For that reason, concentration points were developed where wool is centralized by wool buyers representing Eastern merchants and local dealers. These agencies collect the wool in their vicinity, store it, and strike the best possible bargain for a sale to Eastern merchants and manufacturers. In most cases wools of a certain district are bought at a flat price -- regardless of the quality of the wool or its condition. The producers have been kept ignorant of the grade and quality of wool they produce. As no advance is ordinarily paid for the higher and better quality, there has been no incentive to improve the wool.

In the West, however, the clips are big enough to draw competition from Eastern merchants and manufacturers. In most instances, the wool is sold direct to representatives from central markets or manufacturing centers.

Some producers sell on the contract basis. That is, they make a contract in the winter for delivery of the wool at a specified price at shearing time.

A deposit based on the amount per fleece is usually made by the buyer to bind the bargain. Then other producers make an outright sale agreeing on the price when the wool is shorn. Still others prefer the consignment basis. That is, they ship the wool to a central market and place it in the hands of the commission merchants for sale. In some cases, the growers retain the right to reject any or all bids received for the wool. This system of marketing has been looked upon as a good plan by many of the wool growers representatives for many years. (As if interrupted What is it, Downs?

DOWNS: Professor, you said a while ago that no one system of selling would work --- How would you improve selling methods, then?

THE PROFESSOR: I said that no one system would be practical throughout the United States. But there is plenty of opportunity to devise the most practical plan for your particular section or district.

NELSON: The wool merchants buy wool and hold it until the manufacturers need it. They extend credit to the manufacturer. We would have to compete with that.

THE PROFESSOR: Yes. Unquestionably. In order to supplement the present method of selling, wool growers or their representatives must not only have technical manufacturing knowledge of wool and selling ability, but they must make financial arrangement for carrying the wool and financing the sales to manufacturers. They should also try to reduce the cost of distribution from the grower to the manufacturer. Any plan which raises the price to the ultimate consumer will not be looked on favorably.

DOWNS: Can growers' cooperative associations do all that?

THE PROFESSOR: Yes. Out of those efforts of a few years ago, which Nelson mentioned, several methods have been developed which are now being employed. Some associations have successfully marketed clips for their members for several years.

DOWNS: How do they work?

THE PROFESSOR: In most cases, the members pledge to sell their wool through the cooperative marketing association for a certain number of years. The association receives the wool, grades it, and markets such quantities as the market will readily absorb. The present indications are that this method of marketing is bound to expand ----- (As if interrupted) Yes?

NELSON: How do they grade the wool?

THE PROFESSOR: We'll talk about grades of wool next week. Right now, however, I want to say that whether you dispose of your clips through cooperative marketing associations direct to central markets, manufacturing centers or to local buyers, you should use the same care so that your wool will be placed on the market in its best merchantable condition.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. FARM RADIO SCHOOL First RELEASE Mon., Feb. 21.

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NOT FOR PUBLICATION

SHORT COURSE: Meat Production and Use.

LECTURE No. 5: Summer Storage of Meat.

ANNOUNCEMENT: The first lesson on Uncle Sam's Radio Farm School this evening, continues the schoolmasters discussion of meat production and its use. Just as soon as we remind you that all these printed lessons 216 of them, are yours for the asking, we're going to let our radio professor go ahead with his talk on "Summer Storage of Meats."

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(The characters speaking during this lecture are: The Professor himself; and McAlister and Klein, members of the class.)

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order! ----

You have all heard the old saying that prevention is better than cure.

But a good cure is the best prevention --- when your object is to keep meat from spoiling during the summer.

In fact, the summer storage of meat on the farm is largely a winter problem.

The time to settle the problem is when you cure and pack the meat.

Failure to chill the hot carcass enough, an improper curing mixture, too low or too high temperatures while curing, dirty barrels, not enough overhauling, or too short a curing period may cause an excellent piece of fresh meat to sour or become putrid later on. (As if interrupted) Well, Klein, what is it?

KLEIN: How can you tell whether or not a piece of meat is properly cured, Professor?

THE PROFESSOR: Ordinarily, you can detect incomplete curing when the meat is smoked. If you use a long, cool smoke which lasts over several days and keep the temperature between 70 and 100 degrees Fahrenheit, sour meat should show up by the time you are ready to put the meat away.

If you smoke the meat only two or three days and use a hotter fire which heats the meat to 110 to 120 degrees, sourness may not show up at once. Ordinarily, however, it will show up in the next two weeks. In any case it is always best to test the smoked meat before you pack it away.

McALISTER: How would you test it, Professor?

THE PROFESSOR: Cut off a piece of No. 6 or 8 wire about 12 inches long. Sharpen the wire at the end and put a cob or hand grip on the other end. That will make you a good trier.

Just run the cleaned, sharpened wire into the ball and socket joint, the stifle, the body, and the shank of the ham. Then notice the odor of the trier carefully after each stab for a sign of taint or sourness. You should test the shoulder underneath the shoulder blade, at the joint in the body of the cut, and in the shank.

Meat that has held sweet during a prolonged smoke will not ordinarily spoil even during hot weather.

McALISTER: Professor, the chief trouble we have out at our place is with the skipper flies.

THE PROFESSOR: Yes, skipper flies, mites, and beetles cause a good deal of loss in stored meat. They seem to have an almost diabolical ability to squeeze in, around, or through unexpected and narrow places. The only sure way to protect meat from them is to put it in an insect-proof place early in the spring before the first of those insect pests appear.
KLEIN: Where is the best place to store it?
THE PROFESSOR: You should store cured meat in a dry, dark, moderately cool, well-ventilated place. If your smoke house is insect-tight -- and if you can go into it for meat without letting in the flies, that is the best place to hang the hams. But if there is any chance for infection, it is best to cover the meat up. Clean, dry oats or crushed rock salt can be used to pack down the meat in barrels or boxes.

Another way is to wrap the meat in heavy paper, then in parchment paper to hold in the grease and then sew or tie it up in a tight, heavy muslin bag. As a further protection, you can paint the outside of the sack with a clay wash or a yellow wash --- (As if interrupted) Well?

KLEIN: How do you make that yellow wash, Professor?

THE PROFESSOR: Get out your pencil, I'll give you the recipe for yellow wash. Take this: For each 100 pounds of hams or bacon use 3 pounds of barium sulphate, 1 ounce of dry glue, 1-1/4 ounces of chrome yellow, and 6 ounces of flour.------

Here's the way they mix it. Take a pail and fill it half full of water. Then mix in that flour. Break up all the lumps thoroughly.

Now then in a separate container, mix the chrome yellow in a quart of water. Add the glue. Then pour this chrome yellow-glue-water mixture into the flour-and water mixture. Bring the whole to a boil. Then slowly add the barium sulphate and keep stirring the mixture all the time.

You should make the wash the day before you need it. Put it on with a brush and stir it often while you are putting it on.

Never stack the hams and bacon in a pile after you have put on the yellow wash.

But whatever method you use be sure to protect the meat before the first suspicion of the fly season. Once infection gets in, the only thing you can do is to trim the meat and salvage the part that remains sound.

McALISTER: Professor, choice bacon is mild and usually won't stand much storage.

THE PROFESSOR: Yes, that's right. And it's generally better plan to cure bacon lightly and use it before midsummer.

Now, one word more about storage. Properly cured hams and shoulders that have been held for around a year develop a rich ripened flavor that is vastly different from the freshly smoked stock. This special aged flavor is one of the characteristics of the justly famous southern hams. (As if interrupted) Yes?---

KLEIN: After the ham has been kept in storage for a year or more it get's so hard and dry it won't fry right.

THE PROFESSOR: Then why fry it? The best way to bring out the full ripened flavor is to soak and simmer the whole ham. Then for a change you can slice and fry the cold, boiled ham. ------

But we had better stop here --- before you men get too hungry.

Next week we'll take up lamb and mutton.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U.S. RADIO FARM SCHOOL First RELEASE Wed., Feb. 23

NOT FOR PUBLICATION

SHORT COURSE: Incubation.

LECTURE No.5: Operation of the Incubator.

ANNOUNCEMENT: The first subject for discussion this evening on Uncle Sam's Radio Poultry School is the "Operation of the Incubator." The Schoolmaster has some good timely pointers for you --but incubation is a big important subject and for that reason we urge that you enroll in the U. S. Radio Farm School and avail yourself of the opportunity to secure the 216 printed lessons which go into more detail than these talks. Alright Professor.

(The characters speaking during this lecture are; The Professor himself; and Newton, and Rogers, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order!

Last week we spoke of the advantages of the incubator.

Now we want to point out how to handle the incubator so as to secure successful hatches.

The first thing, of course, is the location for the machine ---

Newton! --- Where do you keep yours?

NEWTON: In the cellar.

THE PROFESSOR: That's good. A cellar or basement is the best place for an incubator -- because the changes in temperature and moisture are not so pronounced as they are in a room entirely above ground. But incubators can be successfully operated in a great variety of places. In fact, most of the large hatcheries are in buildings above the ground level ----

And,Newton, I want to caution you to place the machine where direct drafts cannot strike it. If you operate a furnace in that small cellar, the air is likely to be too dry. You will need added moisture for good incubation -----

Parks ---- I believe you were asking about that last time. You all understand, I take it, that moisture and ventialtion are closely related factors in incubation -- the amount of each depends on the other. In the South, in high altitudes, in dry rooms, and in warm weather, moisture is used extensively in incubation ---- The size of the air cell in the eggs is the best guide to use in judging the amount of moisture you need. (As if interrupted) Yes?

NEWTON: Won't the moisture gauge on the machine show how much is needed?

THE PROFESSOR: Well, as a rule, there is not enough air circulation to allow a gauge to register correctly. For that reason, it isn't of much value. ---- (As if interrupted) What is it, Rogers?

ROGERS: How would you supply the moisture?

THE PROFESSOR: There are many ways. For instance, some poultrymen sprinkle or spray the eggs with water. Others just put a pan of water, or some moist sand, or a wet sponge in the incubator below the egg tray. Other common methods of supplying moisture are to sprinkle or soak the floor of the incubator room or to keep a pail of water under the lamp.

But let's begin at the beginning. We'll say you've set up your incubator according to the manufacturer's directions. You have set it perfectly level and have the regulator working freely.

Before you set the eggs, however, you should operate the incubator for a few days. Keep an even temperature. Regulate the machine before opening it -- but do not change the regulator any more than is absolutely necessary. If you have a lamp machine, you can regulate it to some extent by adjusting the flame to the room temperature.

The thermometer is usually hung up so that the bulb just clears the top of the eggs ----- (As if interrupted) Well, Rogers?

ROGERS: What's the right temperature, Professor?

THE PROFESSOR: 102 degrees Fahrenheit the first week; 102-1/2 to 103 degrees Fahrenheit the second week. At hatching time, you should let the temperature go up to 103-1/2 or 104 degrees.

In case you use a type of thermometer where the bulb touches the egg, you should hold the temperature at 101-1/2 to 102 degrees the first week, 102 to 103 the second week, and 103 the third week. ----

And I might say in passing, that it's a good idea to test your incubator thermometer once a year in water at a temperature of 103 degrees Fahrenheit -- as shown by a thermometer known to be accurate.

After you have operated the machine for some time at the even temperature of 102 degrees, set the eggs.

Then at least twice each day from the second until the eighteenth day you should turn the eggs. If you turn them only twice a day by hand, you should also reverse the trays -- but be careful. Turn the eggs gently. Avoid cracking or jarring them. Rough handling may prevent the germs from developing. If your incubator is equipped with mechanical turning devices, you should turn the eggs three or four times a day.

Then once a day from the seventh day to the eighteenth day, you should cool the eggs. Of course, that will depend on the temperature of the incubator room and the type of machine you use ---- (As if interrupted) Yes ?---

ROGERS: How long should you leave them out? ---

THE PROFESSOR: Until they feel slightly cool to your hand, face, or eyelid. You should also be guided by the size of the air cell. If the air cell in the egg is not large enough, you should cool the eggs longer and use less moisture.

After the eighteenth day, you should close the incubator - and not open it again until the hatching is over. Never open the incubator to see how the eggs are hatching. If you do, you will let out moisture, so thaty many of the chicks may become dry and stick in the shells.

In a good hatch, the chicks in the eggs usually begin to pip the shells on the evening of the nineteenth day. Most of the chicks will be out of the shell by the morning of the twenty-first day. If the chicks which hatch do not come out about this time it shows that conditions have not been right during incubation.

In a machine with a moisture pan in the bottom, it is the common practice to take the pan out as soon as the hatching is over. But the door should be shut as quickly as possible after the pan is taken out.

If there is a big hatch so the chicks are crowded, it is advisable to let some of the chicks go down into the nursery tray before the hatching is entirely over.

As soon as the chicks are through hatching, you should take out the dead eggs and shells and put all the chicks in the nursery trays. Then set the incubator door slightly ajar to allow ventilation to dry off and harden the chicks before removing them to the brooder.

For 36 to 48 hours after the hatch is complete, keep the temperature in the incubator at about 94 degrees Fahrenheit at the level of the chicks heads.

Then remove the chicks to the brooder in a covered box. Be very careful not to let them get chilled.

NEWTON: If the chicks can't get out -- would you help them out?

THE PROFESSOR: If you have to help them out, they usually don't amount to much. If you want to, however, you can help out any of the chicks which have pipped

and place them back on the egg tray --- after the other chicks have dried off so that they will not be hurt by opening the incubator door.

Next week, we'll take up the question of testing the eggs.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. RADIO FARM SCHOOL SECOND RELEASE Wed. Feb. 23.

SHORT COURSE: Common Poultry Diseases and Worms.

(NOT FOR PUBLICATION)

LECTURE No. 5: Chicken Pox or Diptheria.

ANNOUNCEMENT: Our second session of the U. S. Farm School continues the weekly discussion of "Common Poultry Diseases." This evening the Schoolmaster will talk about chicken pox or diptheria. In sending in your request for the 24 booklets containing the 215 printed lessons it is not necessary to send stamps. This material will be mailed you without charge from the U. S. Department of Agriculture. Go ahead Mr. Schoolmaster.

(The characters speaking during this lecture are: The Doctor himself; and Stevens and Davidson, members of the class.)

* * * *

(Two sharp raps -- as if on desk.)

THE DOCTOR: Order! --------

Stevens!

STEVENS: Here!

THE DOCTOR: What's the difference between chicken pox and diptheria in chickens? -

STEVENS: Chicken pox breaks out in little blisters on the skin on the comb and wattles and other places ----

THE DOCTOR: Yes ----

STEVENS: In diptheria, there are patches of stuff deposited inside the chicken's mouth and throat -----

THE DOCTOR: Davidson! ---- Tell us the difference between chicken pox and diptheria?

DAVIDSON: There isn't any.

THE DOCTOR: That's right. Those little knots which break out on the chicken's head and the false membranes which form in its air passages are merely different manifestations of the same disease. Nowadays, we combine them and describe the two conditions as chicken pox.

Both conditions are produced by the same virus ---- but the causative agent is so small it cannot be seen even under the most powerful microscope. ----

STEVENS: Doesn't chicken pox develop as a result of dampness and drafts?

THE DOCTOR: By no means --- Such conditions favor its spread -- but chicken pox is a highly contagious disease. Many species of birds, including chickens, turkeys, geese, ducks, pigeons, guinea fowls, and some wild birds are susceptible to it. When chicken pox breaks out in a flock, you may be sure it has been introduced by infected birds. Infection probably takes place through breaks in the skin. Or sometimes by way of the digestive tract. The disease usually becomes apparent in a chicken in from three to twelve days after exposure to the infection. (As if interrupted) Well ---

DAVIDSON: How long does it last?

THE DOCTOR: Well, it may last anywhere from two or three days to two or three weeks. Or it may run a chronic course and continue for several months.

The severity of chicken pox depends a good deal on the extent of the diphtheritic patches in the fowl's throat.

STEVENS: What other symptoms are there beside the breaking out?

THE DOCTOR: Aside from the eruptions, the symptoms are pretty much like those of roup. The affected birds are dull and listless. They lack appetite. They stand or sit about with their feathers all ruffled up and their heads drawn in. Owing to the clogging of their nostrils and perhaps the windpipes, the birds have trouble breathing. They may breathe through their mouths. That, of course, further parches their tongues and membranes, and aggravates the condition.

DAVIDSON: What kind of medicines do you give them, Doctor?

THE DOCTOR: Medicines are of little or no value in treating chicken pox. The treatment of those severely affected with it, requires much time and patience. And, as a rule, it does not pay.

It is often better to kill the birds, bury or burn their carcasses, disinfect the poultry houses, and in that way wipe out the contagion as soon as possible.

In chicken pox and with every other chicken malady, you should lose no time in separating any sick bird from the flock as soon as you discover it. Antiseptics placed in the drinking water will assist in preventing a spread of the trouble. Dissolve one-third of a teaspoon of permanganate of potash in each gallon of drinking water. (As if interrupted) Yes? ---

STEVENS: Doctor, how about using chicken-pox vaccine? ---

THE DOCTOR: Well, its results are variable. In some cases it seems to lessen the severity of outbreaks. In other cases, there doesn't seem to be any benefit from using it.

DAVIDSON: There is some other treatment that is used, isn't there, Doctor?

THE DOCTOR: Yes. The treatment consists largely of soaking the pox knots and diptheria patches. Then after removing them with a blunt instrument, touching the underlying tissues with tincture of iodine or lunar caustic.

Treatment of those outside blisters about the head is comparatively simple. you just soften up the crusts with carbolated ointment, glycerin, or oil. After an hour or two, you wash them off with warm water containing a little soap. Then you treat the exposed tissue with the tincture of iodine.

DAVIDSON: How about the patches on the inside?

THE DOCTOR: Well, that's a little harder. You just hold their beaks open and swab the false membranes with a soft brush or a little absorbent cotton. You should use a solution made by dissolving 2 drams of common salt in a quart of warm water. After you have loosened the false membranes from the underlying tissue with this solution, you wet a piece of cotton with the iodine and apply it for a moment or two to the diseased surface ----

But as I said before, it is often better to kill the birds and wipe out the contagion as soon as possible.

And as the contagion is generally brought into the poultry yard by infected birds, you should make it a practice to keep all chickens in quarantine before admitting them to the flock. This applies to newly bought chickens and to those of your own flock which have been to exhibitions. You should also take care to keep pigeons, which fly from one poultry yard to another, away from your flock. Pigeons are especially susceptible to chicken pox.

And also remember that good housing and correct feeding will aid in effecting a percentage of recoveries in case this disease gets in your flock.

Next week we will take up coccidiosis. It goes especially hard with chicks.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

U. S. RADIO FARM SCHOOL. FIRST Fri. Feb. 25.

PROGRAM..... RELEASE.....

(NOT FOR PUBLICATION)

SHORT COURSE: DAIRY FARM ENGINEERING.

LECTURE No. 5: Calf Pens and Stables.

ANNOUNCEMENT: Friday brings us once again Uncle Sam's Dairy Farm School This evening we're going to discuss "Calf Pens and Stables," a subject which has much to do with the raising of healthy dairy animals. If you are not receiving printed copies of all these talks do not hesitate to ask for them. We're off not for another inspection trip.

(The characters speaking during this lecture are: The Professor himself; and Reynolds and Tims, members of the class.)

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THE PROFESSOR: Well, here we are, men ----- That's what I call a real calf pen!---

Some of you men may have noticed it, when we were here on Craddock's place before. -------

For those who were not with us, I'll say we inspected Craddock's dairy barn because it's a fine example of a well-ventilated cow-stable ----

You'll notice this calf pen is well ventilated, too --- You see he's got intake and outlet flues for ventilation in cold weather -----

And you see he has one continuous window running the whole length of this pen ----

REYNOLDS: How long would you say this pen is, Professor?

THE PROFESSOR: Oh, it's about 30 feet long by 10 wide. He can keep as many as ten calves in here. A long narrow pen like this is much better than a square one. It gives the calf more chance to exercise -- when it can't be turned out on account of bad weather. And you see, the sunlight can reach more of the floor than if Craddock had the same amount of space in a square pen. It also gives more room for stanchions along one side ----

REYNOLDS: How much space do they usually allow for each calf?

THE PROFESSOR: Each calf should have 30 square feet of pen space. That's about what Craddock's got here. A pen 14 x 22 would be a good size, too ----- What do you think of this arrangement, Tims? Looks like pretty comfortable quarters for the calves doesn't it? ---

TIMS: I guess it's all right --- but I don't see much use of it --- I just tie the calf in a corner or in a cow stall with a rope around its neck ---

THE PROFESSOR: What! ----I'm surprised at you, Tims ---- but I've seen others who seemed to think that any old dark or poorly ventilated corner of the barn is good enough for a calf pen -----

All of you --- Listen to this! --- And don't forget it ---

The heifer calves of to-day will be the cows of tomorrow.

Any setback in their growth -- either because of illness, or lack of proper food and shelter will result in low milk production when they become cows. The best stables and pens are none too good for the calves. In planning the stable, you should consider the health and comfort of the calves --- and also your own convenience. I've seen calf pens where the only way of getting in them was by the "hop over the fence" route ------

And Tims ----Calves should be allowed to run loose in the pen. You should fasten them only while they are being fed. Rigid stanchions such as Craddock has here provide the best method of fastening them. If you arrange them two feet apart in a row next the alleyway, as Craddock has here, you can feed the calves without entering the pen. And, of course, you ought to have enough stanchions so that you can fasten all the calves at the same time.

But remember that calves need exercise. You should let them have it out doors when the weather permits. You see Craddock has a permanent door leading from the pen to the exercise lot.-----

We'll take a squint at his lot in a few minutes. The lot should be well drained. A clay floor is not satisfactory in a calf lot. To insure good drainage it should be covered with cinders or gravel to a depth of several inches.

REYNOLDS: Professor, that wall next to the yard is built so he can take it out entirely---

THE PROFESSOR: So it is, Reynolds! --- That's a good idea. That'll give him more ventilation in warm weather than he can get by the windows and doors. He can just take out that wall, and make an open shed out of this stable ----

I want you all to notice the height of that long window. You see the lower part of it is about 4 feet from the floor. It's high enough so that a draft from the open window will not blow directly on the calves.

REYNOLDS: How much window light should you have in a calf pen?

THE PROFESSOR: At least six square feet for each calf --- But let's look at some of the other features here. You see he has a concrete floor. Concrete, cork brick laid in concrete, and wooden blocks laid in asphalt are all satisfactory. The main point is to use some material that is impervious to water and can be cleaned easily ----

TIMS: Shouldn't he have a gutter?

THE PROFESSOR: It's not needed --- You see there's a light depression over near that corner there where the floor drain is. The floor slopes toward the depression. It should have a pitch of about 1/8 of an inch to the foot.

Notice the manger, too. It's concrete and also provided with drains for cleaning. It runs the full length of this row of stanchions. Craddock should have partitions to fit snugly in the manger to keep the calves from sucking one another's ears after feeding. The partitions should be about 32 inches high and should be built so that they could be lifted out while the manger was being cleaned ----

TIMS: How about a wooden manger, Professor?

THE PROFESSOR: Make it just like this is-- except for cleaning, you can hinge the side next the alleyway. Hinge the side to the bottom of the manger, so you can drop the side down. That will make it easier to clean.

A calf pen needs to be cleaned often. You'll notice Craddock has extended the carrier system installed in the main cow barn to this calf pen -- that's mighty convenient for getting the manure out -----

But let me caution all of you, never throw manure out in the yard where the calves must walk over it. The manure should be removed every day to the fields or to a properly built manure shed or pit. That's important from the standpoint of the health of the calf as well as that of sanitary milk production.------

Now, let's take a look at the calf lot. It should be several times as big as this inside pen. It should be fenced with woven wire or boards. It shouldn't have any barbed wire about it. It should have shade at one end --- but this arrangement of Craddock's for removing the entire side next the yard should take care of that feature. But let's see, if his yard is as good as his pen ----

REYNOLDS: Just a minute, Professor ------

Here's Craddock's bull pen over here --- tell us what you think of that --

THE PROFESSOR: We'll have to let that wait until next time --- I have a bull pen I want to show you --- It has several features that Craddock has overlooked in his there. But we'll talk about that next week --- Everybody outside!

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM..... RELEASE.....

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U. S. RADIO FARM SCHOOL Second Fri.Feb.25.

NOT FOR PUBLICATION

SHORT COURSE: Dairy Cattle Breeding.

LECTURE No.5: The Importance of the Dairy Sire.

ANNOUNCEMENT: The second lesson on the the Radio Dairy School, sponsored by the U. S. Department of Agriculture, takes up now with a discussion of the "Importance of the Dairy Sire." All new students who request enrollment in the Farm School in order to obtain the reference library of 24 booklets should also ask for Aunt Sammy's Radio Cookbook, an excellent publication also distributed free by the U. S. Department of Agriculture.

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(The characters speaking during this lecture are: The Professor himself; and Merrill and Locke, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order! ---

Next week we are going to take up the matter of selecting the bull.

Before we do that, however, I want to emphasize the importance of the bull when breeding for more milk.

As the producing ability of your cows increases, it becomes necessary for you to give more and more thought to the selection of the sires for your herd. That is true, whether you are a dairyman with grades, or a breeder of purebreds.

If you are to maintain the production of your herd at its present level, you must choose bulls equal to those you have had.

If you are to increase the milk production in your future herd, you must choose bulls superior to those you have had.

Mistaken judgement in the selection of a bull has often caused financial loss and worry to breeders. It has even resulted in the abandonment of many well established breeding business --- for the continued fame of a herd is based on a wise breeding policy -------

Let me point out how it works. Merrill --- Let's suppose you have a herd of 20 cows which produce an average of 5,000 pounds of milk a year. We'll say that Lockethere also has a herd of 20 cows averaging 5,000 pounds of milk. His herd is just as good as yours and just as big and his farm and equipment are equal. We'll say both of you are members of a cow-testing association.

Now you get interested in proved bulls --- that is, bulls which have enough daughters in milk to show their ability as herd sires. You get the help of your cow tester. You locate such a bull in a herd similar to your own. He has daughters producing an average of more than 600 pounds of milk a year more than their mothers. The owner is willing to sell because he cannot use that bull any longer without inbreeding ----

All right -- In the meantime, Locke here needs a sire in his herd. We'll say Locke hasn't paid much attention to the breeding side of his business. He disregards the difference in the transmitting ability of bulls. He just telephones to a cattle dealer who sends him an ordinary bull. He may even pat himself on the back -- because he bought the bull at a low price.

Now, Merrill, out of the first calf crop, you and Locke each raise 5 heifers to keep in your herd. You do the same the next year -- and the year following that. Then both you and Locke sell your bulls. Each of you have 15 heifers, 5 of which are about ready for calving.

At the end of five years, the cow-testing association records show you, Merrill, that that bull you bought has transmitted milk producing ability to his daughters. Your fifteen average 600 pounds of milk, or about 300 quarts, per year more than their mothers. Say you get 10 cents a quart for milk --- that 300 quarts brought you in $30. In 4 years, at that rate, each daughter earned, on the average $120 more than her mother. That makes $1800 which the 15 daughters of your proved bull earned you. Most of that was a net gain.

Naturally, that kind of thing appealed to you. You bought another proved bull and enlarged your business.

In the meantime, the daughters of Locke's bull were doing their best, But each fell short of her mother's production by about 600 pounds of milk. With ten more daughters like that coming along, the dairy business would of course seem bad to Locke. Under such circumstances, you wouldn't be surprised, if Locke complained about the low price of milk, the high cost of feed, bad weather, and the condition of the farmer generally --------- I expect you would go out of the business altogether, wouldn't you, Locke?

LOCKE: Did any case that bad ever happen? -----

THE PROFESSOR: Yes, Locke. And some probably a great deal worse. We supposed a case, just to show why some men have found dairying unprofitable. Of course, in actual practice, it's hard to get a case where all the conditions would be equal.. But here are some figures based on actual records -------

Merrill! --------

MERRILL: Yes, sir.

THE PROFESSOR: Step to the blackboard there -- I want you to put down these figures for me -- so the class can see them. These are actual milk production figures from officially tested cows. I'll give you the comparative milk production records of more than 600 mothers and daughters. These cows were all the same breed. Allowance has been made for age differences.

11,732 pounds of milk equals the annual production of the daughters.

11,568 pounds of milk equals the annual production of the mothers.

MERRILL: Professor, that's a difference of only 164 pounds.

THE PROFESSOR: Yes, I know it, Merrill --- but just a moment --- 51 bulls sired those daughters. Let's take the ten best bulls. The ten best bulls had 96 daughters. They averaged 1,226 pounds of milk more than their mothers. How does that compare with the average for the whole lot?

MERRILL: It's more than seven times as much.

THE PROFESSOR: All right -- Let's take the other side of the picture. The 10 poorest of those 51 bulls sired 85 daughters that averaged 1,575 pounds per year LESS than their mothers.

That gives you some idea of the importance of a good bull, and the further you narrow it down, the more striking are the records.

The best of those bulls sired 6 daughters. Those 6 daughters averaged 1,928 pounds MORE milk than their mothers.

On the other hand, the poorest of those bulls sired 7 daughters. Those 7 daughters produced an average of 3,749 pounds LESS than THEIR mothers.

LOCKE: Do all purebred bulls have ability to increase the production of the daughters over their mothers?

THE PROFESSOR: No. Determining the breeding ability of a bull, of course, involves some risk on the part of the breeder -----

LOCKE: It takes a good deal of time to find out, too, doesn't it?

THE PROFESSOR: Yes, you have to wait about three years before proof of such ability begins to show in the offspring. But if at the end of that time, the bull is found to transmit low production, to the daughters that have been tested, it's a pretty good sign that his younger daughters also will be low producers. --------(As if interrupted) Well? ----

LOCKE: Well, how would you go about selecting a bull ---- so as to increase the chances for getting high-producing cows?

THE PROFESSOR: That's what we are going to talk about next time.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM..... U. S. RADIO FARM SCHOOL ..... First RELEASE Mon. ~~Feb. 28.~~

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SHORT COURSE: Meat Production and Use.

LECTURE NO. 6: Cooking of Meat.

NOT FOR PUBLICATION

ANNOUNCEMENT: The first session of the U. S. Farm School will be thrown open to all visitors this evening who are interested in cooking meats. All regular students as well as new comers who wish a copy of Aunt Sammy's radio cookbook developed by the U. S. Department of Agriculture, should make their requests to this station.

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(The characters speaking during this lecture are: The Professor himself; Cole and Trent, members of the class.)

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THE PROFESSOR: The class will be in order! ----

I expect we will have a hot discussion today.

Several members of the class have asked that we get a little nearer to the dinner-table -- that we take up meat cooking.

Heretofore, we've talked about the part that proper breeding, feeding, killing, inspection, and storage play in the production of high quality meat.

But if the consumer is to get the full value of the quality in the meat he eats, it must be cooked properly. Many a fine steak has been ruined in the cooking. On the other hand, many a tough cut has yielded a delicious meal when prepared properly.

Too often, however, the cook disregards the first law of meat cooking.

The most important thing to keep in mind is to adapt the method of cooking to the cut. Don't get a tender cut and cook it as a pot roast. You are paying for tenderness. You should cook a tender cut so as to retain as much as possible of the flavor. If you want a pot roast, buy one of the cuts adapted to pot roasting --- (As if interrupted) Well, Cole?

COLE: What cuts are adapted to pot roasting?

THE PROFESSOR: Well, for instance, the round, or shoulder, or chuck.

TRENT: Professor, just what's the difference, in a general way, in the way to cook a tender cut and a tough one.

And, of course, you all know that if you want soup, you should buy the very tough, bony cuts, particularly the joint cuts, since they are not useful for other purposes and the joints are valuable in that they add gelatin to the soup.

COLE: How about lamb and mutton. How do you cook them?

THE PROFESSOR: In much the same way you do beef. In lamb, however, practically all of it is tender, so you don't have to worry much about cooking for tenderness.

In case you do strike a tough cut, just remember that to make tough meat tender requires the judicious use of a small amount of water, retaining the steam, and longer cooking at low temperature. Browning the outside holds in the flavor and makes the meat more appetizing.

COLE: What are the best cuts?

THE PROFESSOR: The cuts usually considered most choice in mutton and lamb, as in beef, are the rib and loin portions -- but the hind leg is probably the favored lamb roast.

The leg of lamb is more desirable than beef round because of the greater tenderness and larger amount of fat. It is usually roasted, while the rib and loin are ordinarily used for chops which are broiled.

Experimental work has sown that the front leg is quite as tender and in many cases has a sweeter flavor than the hind leg -------

TRENT: Professor, the front leg is harder to carve thanthe hind leg.

THE PROFESSOR: Yes. And that's probably the reason it is less popular. But you can get around that by taking out the shoulder bone entirely and filling the cavity with bread stuffing.

COLE: How would you cook the ribs ends and the tougher parts of the shoulder and neck.

THE PROFESSOR: Use them for a stew. They are not big enough to make them desirable for either roasting or broiling.

Always remember adapt your cooking to the cut.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Mon., Feb. 28

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NOT FOR PUBLICATION

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 6: Handling of Fleeces.

ANNOUNCEMENT: Our second lesson on the U. S. Radio Farm School continues the discussion on wool. "Handling Fleeces" is the subject. Remember, please, that printed talks, 216 of them, will be sent by the U. S. Department of Agriculture without charge to all who request them through this station. Continue professor.

(The characters speaking during this lecture are: The Professor himself; and Reed and Berry, members of the class.)

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THE PROFESSOR: Catch hold of that end of this cloth, will you, Cameron? --- That's right ---- Now, Moss, suppose you take this other end. I want you to hold it up so the class can see it ------

REED: What is that, Professor?

THE PROFESSOR: It's a piece of wool cloth that a wool manufacturer sent me--- so I could show this class a thing or two ------

Now if you will all gather around closely, we'll begin.------

Can you see those whitish streaks in that cloth? What do you think caused them, Berry?

BERRY: I haven't the slightest idea, Professor.

THE PROFESSOR: Well, I'll tell you. Those whitish streaks are caused by vegetable fibers which got in the wool but wouldn't take the wool dye. They didn't show up until after the dying operation. ---- when they had already been spun and woven into the finished cloth. Getting those fibers from the finished cloth requires hand labor. It is a very tedious and expensive operation.

BERRY: What have wool growers to do with that? I don't see why we should bother with it.

THE PROFESSOR: Those fibers are from jute, sisal or hemp twines used in tying the wool. Those whitish streaks show you the importance of using paper twine for tying fleeces. You should always insist on paper twine because when small pieces of paper twine are left in the wool they will be removed in the scouring operation.

But the jute, sisal or hemp twines are very objectionable because vegetable fibers from them will get into the wool and will not be discovered until they are found in the finished cloth as whitish streaks. (As if interrupted) Well, what is it, Reed?

REED: How much of that paper twine would you use in tying a fleece?

THE PROFESSOR: Just enough to keep the fleece from coming apart when it's handled. That usually takes about 7-1/2 feet of twine. You should tie the fleece in a close, compact manner.------- But let's go through the entire tying process.

Let's say you have a fleece here sheared and ready for tying. The first thing you do is to gather it up and take it to a large table out of the shearer's way. Or maybe we can just push it back to a clean part of the shearing floor. Then you lay it out with the weather side facing upward. You shouldn't include the tags and dung locks which fall from the wool as it is tied.

Now then you fold in the flanks and belly wool and other loose ends. And you tie the fleece with the shoulder and side wool on the outside --- tie in compactly and with paper fleece twine.

Reed -- I suppose you sack your wool as soon as it is sheared? -----

REED: Yes, sir. As soon after as possible.

THE PROFESSOR: That's good. Wool shouldn't be allowed to stand in the open. Dust, dirt and foreign matter are very likely to get in it, if you leave it exposed. That will not only mar its looks -- but will make it a less desirable product ------- Where do you do your sacking, Reed?

REED: The sacking platform is right in the shearing shed -- it's convenient for gathering up the fleeces and for removing the sacks after they are filled.

When I sack my wool I tramp it evenly to make the sack neat looking. Then I sew up the sacks as fast as they are filled.

THE PROFESSOR: That's good. And, of course, you mark each sack to show what kind of wool is in it -- and mark it plainly. And after sacking, I

take it, you store the wool in a clean, dry place---- where it will be off the ground and sheltered from the sun, the rain, and the dirt until it is to be sold.

After the first fleece is taken away, you should sweep the floor clean to get it ready for the next fleece. You should keep all the tags together and sack them separately. And you should be especially careful to keep every fleece of black wool and every portion of black fiber by itself. It is to your advantage to have your wool sacked as uniformly as possible. Of course, this will vary according to the number of sheep and the conditions under which you must shear your sheep. You should try to keep the fine fleeces, the coarse fleeces, tags, blacks, bucks, and yearling fleeces in bags by themselves ---- (As if interrupted) Yes? -----

BERRY: What's the best way to do that, Professor?

THE PROFESSOR: The best way is to separate the sheep into groups before you shear them. That will make it easier to keep track of the different kinds of wool.

And when you find it necessary to put more than one kind of wool in a wool sack, always separate the two kinds by a clean gunny sack.

You must remember that black wool coming in contact with white wool will make the white wool undesirable for pure white goods. Similarly tags which are usually removed when the sheep are sheared are apt to discolor the white wool with which they come in contact and make that wool undesirable for white goods. When many tags are found in the fleece, the buyer is apt to discount the value of the entire lot of wool.

Just bear in mind, that when properly merchandized wool that is systematically packed in a uniform, attractive manner will more than pay for the extra trouble --- because it will sell more readily and usually bring a higher price. Even small lots of wool so prepared are often sold in the original bags and do not require grading ------

REED: How about grading, Professor?

THE PROFESSOR: Well, Reed, that's something we will have to let go over until next week. But there are several points all you wool growers should know about grading.

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